REVIEWS AND APPROVALS

ILLINOIS RIVER NATIONAL WILDLIFE AND FISH REFUGES COMPLEX

Havana, Illinois

ANNUAL NARRATIVE REPORT

Calendar Year 1992

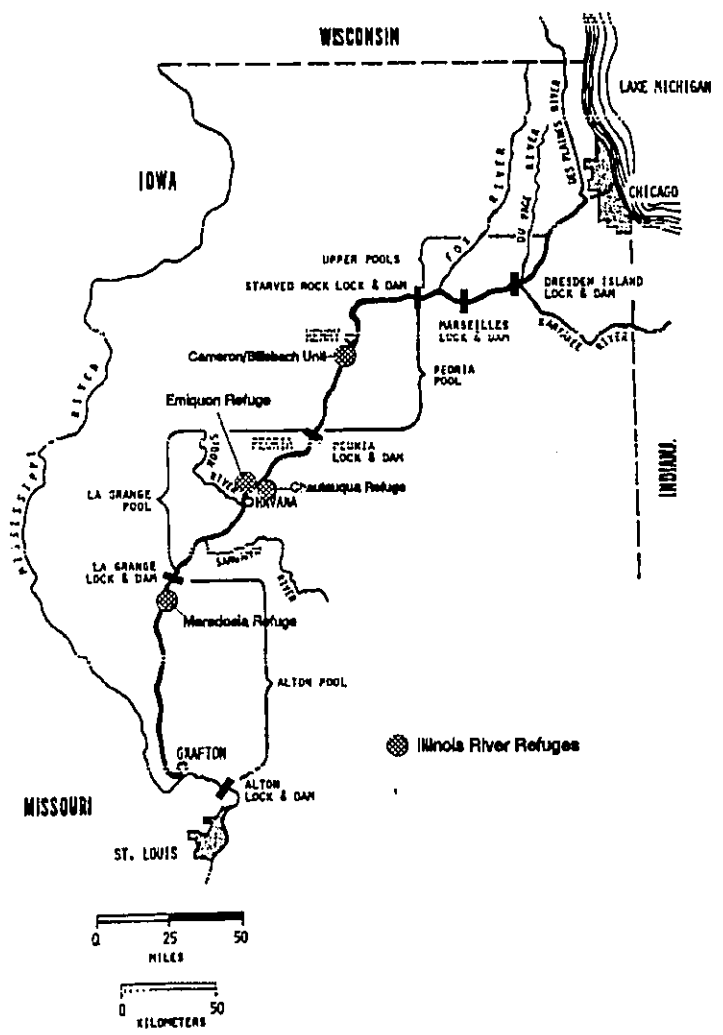
Andrew C. French 04-08-93 Matthew D. Verschoor 4.19.93
Refuge Manager Date Refuge Supervisor Date

Susan Haseltine 5-17-93
Regional Office Approval Date

Lands administered as a part of the Illinois River National Wildlife and Fish Refuges Complex are located in the Alton Pool (Meredosia Refuge), La Grange Pool (Chautauqua Refuge and Emiquon Refuge), and Peoria Pool (Cameron-Billsbach Unit) on the Illinois River (Figure IRF-1).

When the acquisition of the four refuge areas is complete, the Illinois River Refuges could include about 23,000 acres of bottomland forest, backwater lake, and floodplain wetland habitat. To date about 8,500 acres have been acquired.

Figure IRF-1, Illinois River Navigation Pools.



REVIEWS AND APPROVALS

ILLINOIS RIVER NATIONAL WILDLIFE AND FISH REFUGES COMPLEX

CHAUTAUQUA NATIONAL WILDLIFE REFUGE

Havana, Illinois

ANNUAL NARRATIVE REPORT

Calendar Year 1992

INTRODUCTION

Chautauqua National Wildlife Refuge (Refuge) was established by Executive Order 7524 on December 23, 1936, which authorized the purchase of lands owned by the defunct Chautauqua Drainage and Levee District. The Refuge is located in Mason County, six miles north of Havana and about 45 miles northwest of Springfield, Illinois. The purpose of the Refuge is to serve "as a refuge and breeding ground for migratory birds and other wildlife." Under pristine conditions, this segment of the Illinois River floodplain wetland complex was composed of a series of backwater lakes (Figure CTQ-1). In the early 1900's, like many floodplain wetlands, the area was diked, drained, and converted to agriculture (Figure CTQ-2). During the 1930's, a series of navigation locks and dams were built on the Illinois River for barge traffic.

Figure CTQ-1, Historic Backwater Lake Complex - Chautauqua Refuge.

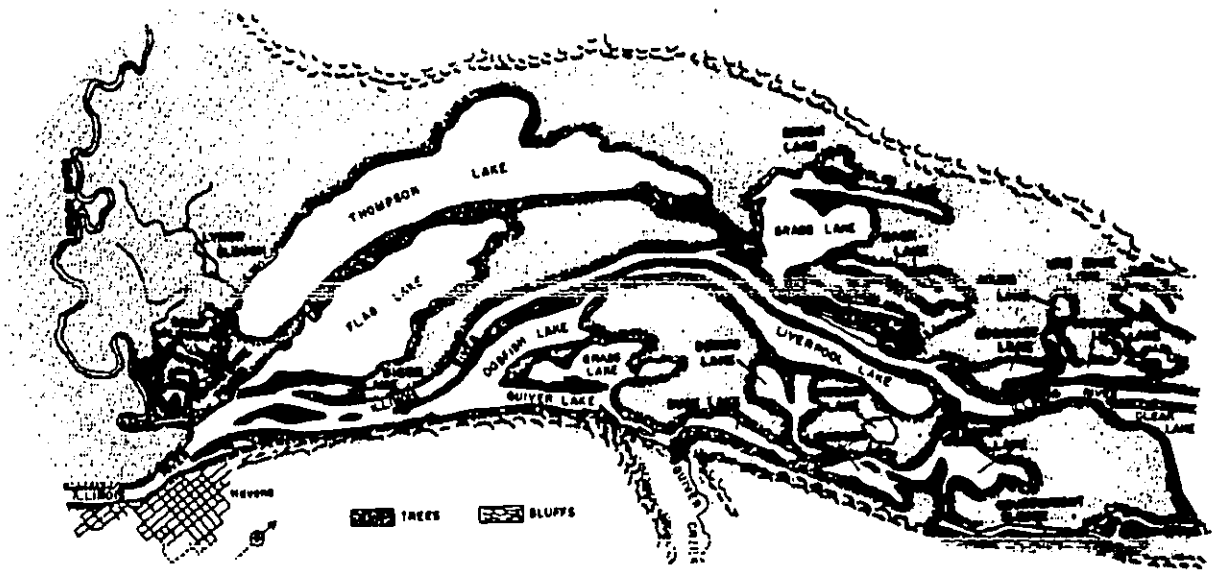
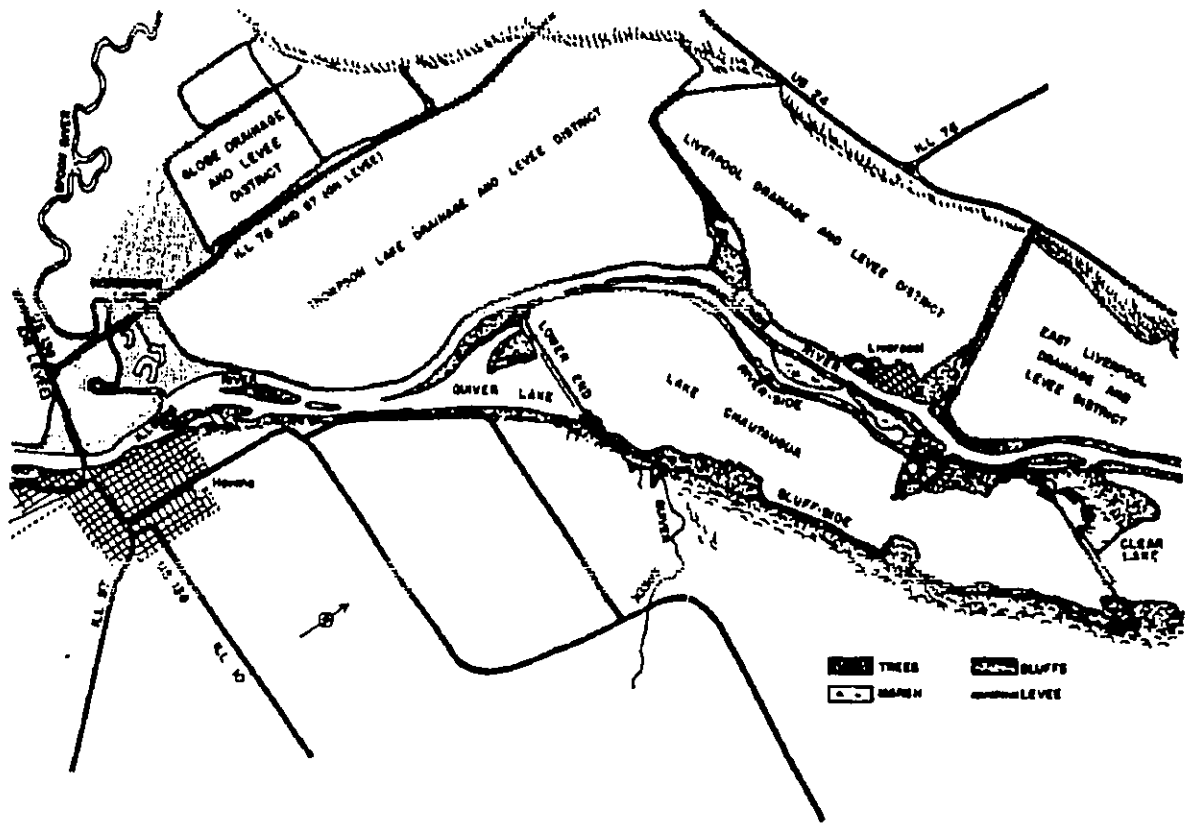


Figure CTQ-2, Present Levee Network - Chautauqua Refuge.



The Refuge is an important link in the chain of resting, feeding, and wintering areas for waterfowl and other migratory birds in the Mississippi Flyway. Chautauqua Refuge (4,488 acres) includes backwater lake (3,405 acres), bottomland hardwoods (933 acres), and woodlands (150 acres) habitat. Chautauqua is the headquarters for the Illinois River National Wildlife and Fish Refuges.

Page

TABLE OF CONTENTS

Page

F. HABITAT MANAGEMENT (cont.)

G. WILDLIFE

H. PUBLIC USE

Page

H. PUBLIC USE (Cont)

I. EQUIPMENT AND FACILITIES

J. OTHER ITEMS

K. FEEDBACK

A. HIGHLIGHTS

The Lake Chautauqua $4.2 million Environmental Management Program construction project began (Section D.6).

Record number of bald eagles on Refuge for second consecutive year (Section G.2).

Record number of waterfowl recorded during late October drawdown (Section G.3).

Progress made in land acquisition for three new refuges, and addition to one existing refuge (Section C.3).

The large break in Lake Chautauqua's crossdike was repaired after 22 years (Section F.2).

Record low water levels on Lake Chautauqua result in 1,000 acres of mud flats and moist soil plants - only to be drowned in the August flood (Section F.2).

One-half mile wheelchair accessible Chautauqua Nature Trail completed with grandiose dedication (Section H.4).

Refuge's first ever Partners for Wildlife wetland restoration projects completed (Section F.14).

Letter from volunteer's mother provides heartfelt thanks to Refuge staff for allowing wheelchair bound son to be an important part of the Chautauqua Nature Trail construction and dedication (see next page).

10-21-92

OCT 22 1992

Dear Andy,

I'm really sorry I didnt get to personally talk to you the other day. I had alot I wanted to say to you, but didn't get a chance. So I'll try to in this letter.

You and the employes at Lake Chautauqua have made a friend forever! There is not many people who accept Danny for who he is or acknowledge him for what he's done, no matter how little it seems to us. Alot of people say Danny is lazy, irresponsible and just dont try, and Mom makes something just right for him, especially at school. If they only knew how hard it was to accomplish something so little, that they take for granted everyday. You with one in a wheelchair and you know how it is. Something so easy can be a huge mountain to him. He is so proud that he walked on the trail and he thinks it turned out to be the Greatest!! He cant wait till we can come back down.

You opened alot of people's eyes at school. It's hard when you are the only one that has a child in a wheelchair. You showed them that Danny can accomplish things without his Mom being at his side. What he done at Lake Chautauqua he done own his own and is so proud.

I want to thank everyone so very much

for the wheelchair, it's just what he needed to get around easier, but most of all I want to Thank-You for making Danny feel like he was on top of that Mountain. Your speech about Danny brought tears to my eyes and many other people. There's only a small handful of people that think Danny is a special person and has alot to offer! Your one of a Kind and will be in our hearts forever. So once again Thanks to everyone for Making Sat such a special Day - A Day he will always Remember!

Thank-You
Joe and Lana
Trance

I have enclosed some pictures I took - they really speak for themselves - the smile he can put on other people's faces and the big one he has on his by doing things he enjoys. He really thinks the world of everyone down there! The pictures show you that. Once again a Huge Thank-You to everyone!

Lana

B. CLIMATIC CONDITIONS

Weather for 1992 was extremely mild and variable, with several record conditions. January and February had high temperatures of 52 and 66 degrees, respectively. Lows for this period were -8 degrees in January, and 11 degrees in February. A late frost occurred April 28, and a record low of 38 degrees occurred on May 26. A near record low of 43 degrees occurred on June 21. Temperatures in August averaged 4 to 5 degrees below normal, with 22 days dipping to cool lows in the 50's. The first frost occurred on October 6. The height of fall colors occurred from October 3 to October 17. The minimum temperature for 1992 was -8 degrees on January 16. The maximum temperature was 95 degrees on August 10.

A total of 38.35 inches of precipitation was received in 1992, which is about one inch above normal. About 17.45 inches of snow was received, which is almost 9 inches below the average of 26.2 inches. Snowfall occurred on January 14, 2-1/2 inches; January 15, 2 inches; December 11, 5 inches. Significant amounts of rainfall occurred on June 26, 3.6 inches; September 10, 2 inches; October 15, 2.1 inches. May was the second driest in 119 years of recordkeeping with 0.92 inch. August was the driest on record with 0.65 inch.

Lake Chautauqua (Lake) was ice free at the beginning of January. By January 13, the Lake was 70 percent iced over and by the 17th, 99 percent iced over. The end of January showed approximately 50 percent ice coverage. The Lake was ice free during the first week of February, but was 100 percent frozen from February 10-16. The maximum depth of ice during this period was three inches. Throughout the latter part of February the Lake was ice free. Scattered areas along the Lake shoreline experienced surface freezing during the second and third weeks of December, with approximately 90 percent surface ice by the end of December.

Table CTQ-1, 1992 Precipitation - Chautauqua Refuge.

Month	1992	Average*	Deviation	Snow
January	0.84	1.58	- 0.74	6.00
February	1.34	1.77	- 0.43	0.50
March	1.86	3.16	- 1.30	3.45
April	3.80	3.54	+ 0.26	
May	0.92	4.15	- 3.23	
June	2.01	4.27	- 2.26	
July	9.70	3.77	+ 5.93	
August	0.65	3.45	- 2.80	
September	5.14	3.36	+ 1.78	
October	2.58	3.05	- 0.47	
November	6.24	2.74	+ 3.50	
December	3.27	2.44	+ 0.83	6.50
TOTALS	**38.35**	**37.28**	**+ 1.07**	**17.45**

*1941 through 1992

Table CTQ-2, 1992 Temperatures - Chautauqua Refuge.

Month	High	Low	Average High*	Average Low*	Avg.
January	52	-8	29.6	15.2	22.4
February	66	11	39.9	24.8	32.4
March	75	15	54.0	34.0	44.0
April	83	25	67.0	42.0	54.5
May	90	35	81.0	59.0	70.0
June	90	43	87.0	65.0	76.0
July	92	57	89.0	72.0	80.5
August	95	49	86.0	64.0	75.0
September	88	40	80.3	5.8	68.1
October	84	22	67.5	43.2	55.4
November	62	20	44.2	27.7	36.0
December	61	3	41.6	23.8	32.7

*1941 through 1992

C. LAND ACQUISITION

3. Other

Refuge Ascertainment - General

This was the second year of a pilot program between the Division of Realty and the Division of Refuges. The two Divisions agreed to combine personnel and funding to

accomplish several new National Wildlife Refuge ascertainment projects entirely from a field station over a two to three year period (Section E-5).

During 1992, land acquisition activities continued on three proposed national wildlife refuges in Illinois, as well as additions to one existing refuge - Meredosia Refuge. Land acquisition activities for Meredosia Refuge are covered in the 1992 Meredosia Refuge Annual Narrative, included in a separate section of this Illinois River Refuges Annual Report. The three proposed refuges are: Yellowbank Slough Refuge, Gallatin County; Kaskaskia River Refuge, Clinton, Washington, and St. Clair Counties; and Emiquon Refuge, Fulton County. Activities for each proposed refuge are presented in following sections.

On February 13, RM French traveled to Springfield, Illinois, to meet with the Directors of the Illinois Department of Conservation, Department of Agriculture, Department of Environmental Protection, Department of Commerce, and Department of Water Resources concerning Service ascertainment activities in the State of Illinois.

On February 22, RM French spoke at the State of Illinois, Ducks Unlimited Annual Convention held in Bloomington, Illinois. The talk focused on Service private lands initiatives and opportunities, and refuge ascertainment and acquisition in Illinois.

On April 4, RM French presented information and discussed the proposed Emiquon, Kaskaskia River, and Yellowbank Slough National Wildlife Refuges to about 100 members of the Illinois Waterfowl Alliance during their annual meeting in Peoria, Illinois.

On April 7-8, BT Engelke traveled to the proposed Patoka River Refuge to help set up a database for refuge ascertainment work on the proposed Patoka River Refuge in Indiana. The refuge manager sent a letter and was very appreciative of BT Engelke's assistance.

Proposed Emiquon National Wildlife Refuge (Refuge), Fulton County, Illinois.

During 1992 the Service was engaged in a detailed environmental and economic evaluation of the potential impacts of the proposed Emiquon Refuge. The 11,039 acre Emiquon Refuge is being proposed to protect, restore, and manage migratory bird, fish, and resident wildlife habitat in the Illinois River Valley, while providing for increased public recreation and educational opportunities in the region (Figure CTQ-3).

Emiquon Refuge could contribute to the goals of the Upper Mississippi River and Great Lakes Region (UMRGLR) Joint Venture of the North American Waterfowl Management Plan and the National Wetlands Priority Conservation Plan. When restored and managed, the 11,039 acres will provide quality backwater lake (2,800 acres), bottomland forest (2,900 acres), upland forest (700 acres), prairie (800 acres), seasonal wetland (1,900 acres), and marsh (800 acres) habitat for migratory birds, fish, and resident wildlife (Figure CTQ-4). Emiquon Refuge will satisfy 66 percent of the habitat deficits identified in the UMRGLR Joint Venture area. An additional 1,100 acres could be retained for agricultural production (Figure CTQ-4).

Historically, two backwater lakes, Thompson Lake (1,800 acres) and Flag Lake (1,000 acres), provided excellent habitat for migratory birds, fish, and resident wildlife. The Fulton and Mason County area's ability to support an abundance of fish and wildlife and the pursuit of traditional outdoor activities once made the area the tourism capital of Illinois. The 11,039 acre Emiquon Refuge is being proposed by the Service to protect, restore, and manage migratory bird, fish, and resident wildlife habitat in the Illinois River Valley , while providing for increased public recreation and educational opportunities in the region.

The internal draft environmental assessment for Emiquon Refuge was released for Regional Office review and comment in November. The draft environmental assessment will be released in January, 1993, and the final will be released in March, 1993.

Figure CTQ-3, Proposed Emiquon Refuge.

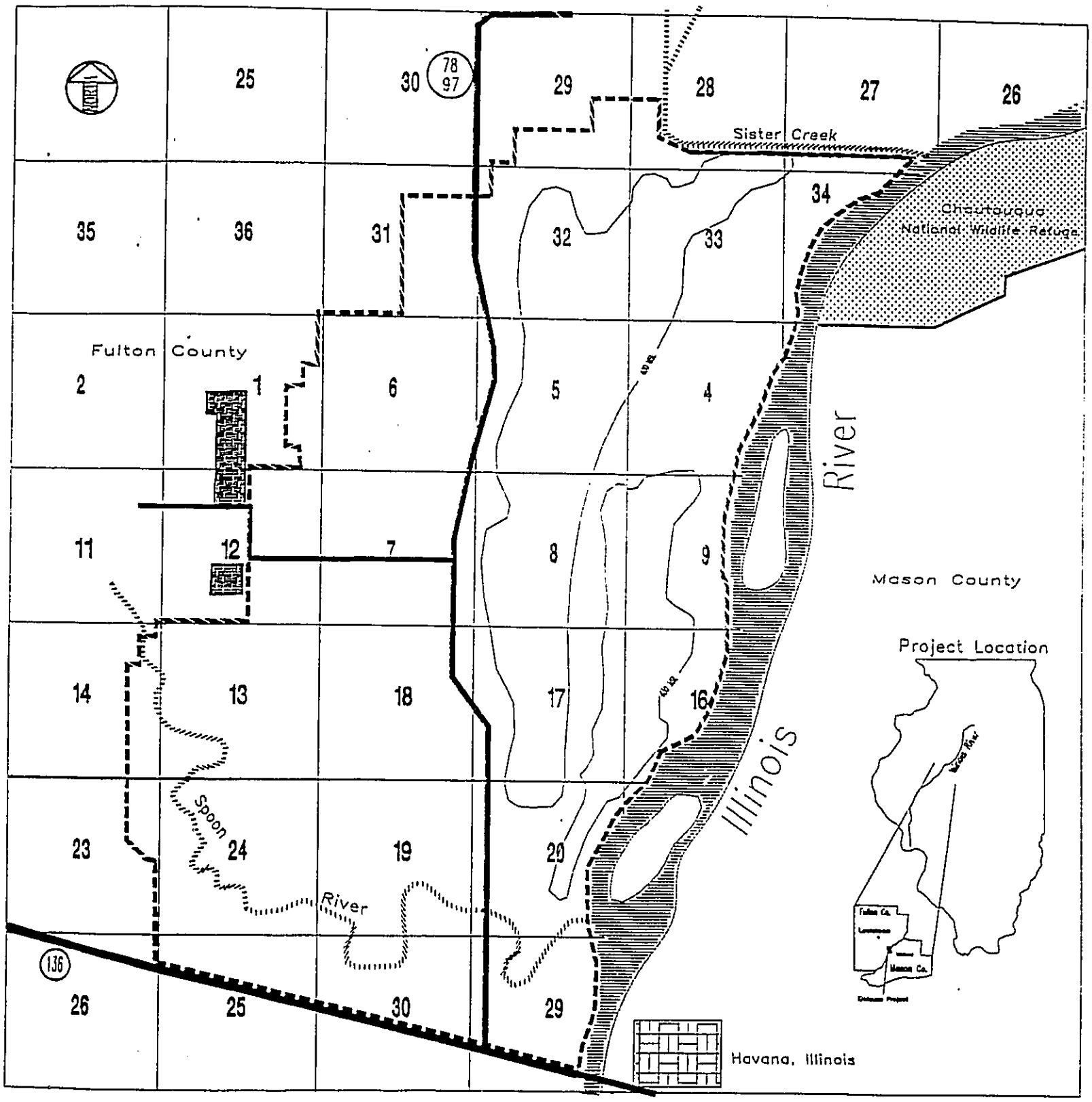
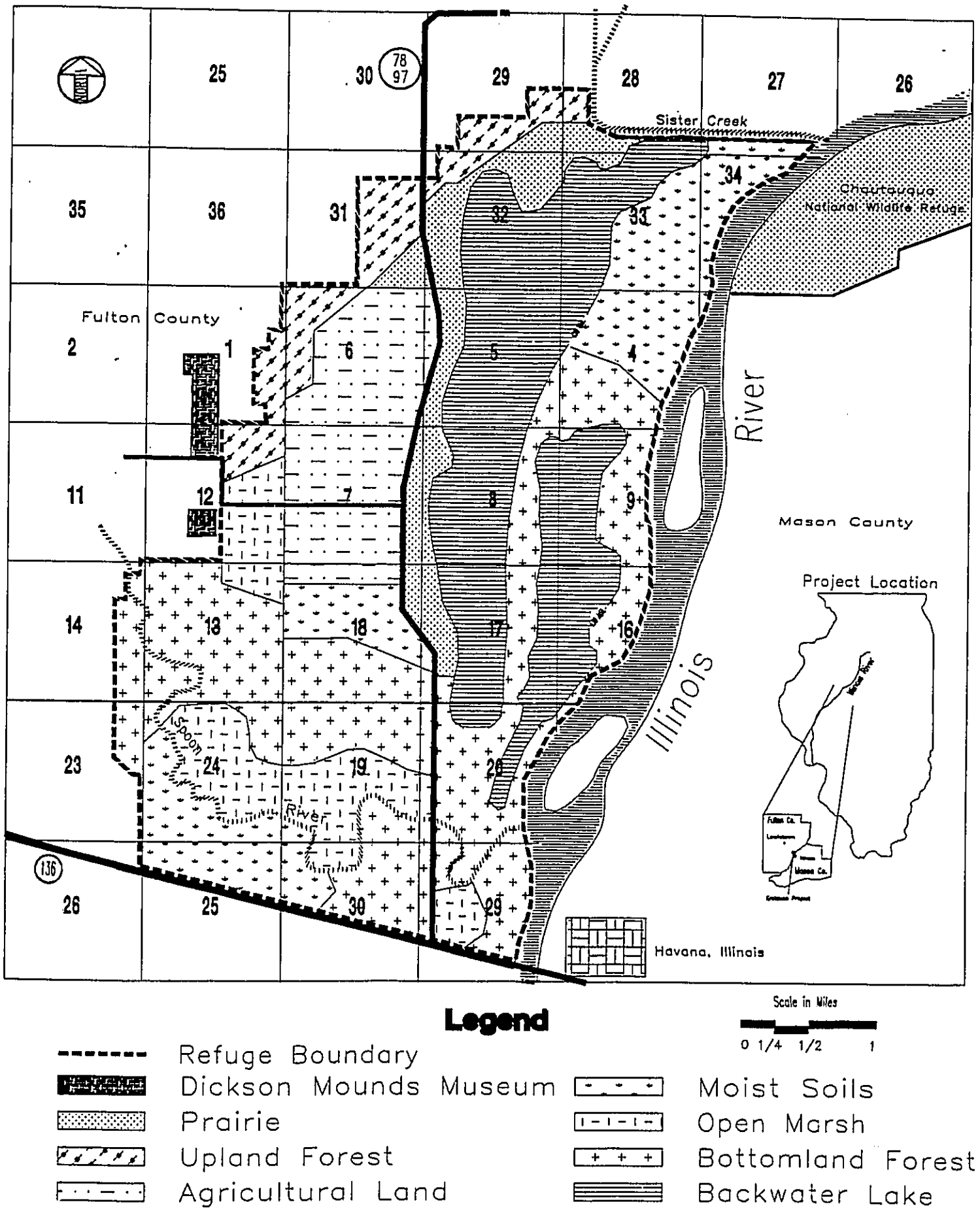


Figure CTQ-4, Projected Refuge Habitat.



Proposed Yellowbank Slough National Wildlife Refuge, Gallatin County, Illinois

The 21,077 acre Yellowbank Slough National Wildlife Refuge is being proposed to preserve significant bottomland forest and wetland communities as well as rare habitat for plant and animal species. The area also offers excellent opportunities for wetland restoration and management. Protection, restoration, and management of this wetland complex could contribute to the goals presented in the National Wetlands Priority Conservation Plan and the Lower Mississippi Valley Joint Venture of the North American Waterfowl Management Plan.

The Yellowbank Slough is strategically located in Gallatin County, Illinois, at the juncture of two major rivers, the Ohio and the Wabash (Figure CTQ-5). Traditionally, the area provided migration and wintering habitat for a major portion of the Ohio River Valley waterfowl migration. Destruction of bottomland forest and wetland habitat for agricultural development, oil exploration, and coal mining in the general area are the primary threats. Presently there are about 10,000 acres of bottomland forest and marsh habitat.

The habitat is composed of open water, bottomland forest (cypress-tupelo), shrub swamp, marsh, and agricultural land. The area is about equally divided between bottomland forest, cropland, and marsh. The area floods periodically in fall, winter, and spring by overflow from the Wabash River. When this occurs during migration, thousands of waterfowl concentrate in the area and remain until normal water levels return. Goose Pond has been included in the Illinois Natural Area Inventory. Yellowbank Slough has also been designated as an outstanding aquatic ecosystem due to the uniqueness of fauna and environmental quality.

The proposed Refuge objectives and those of the Agricultural Conservation and Environmental Center (ACEC) indicate that there is an opportunity for a mutually beneficial partnership. The ACEC area of interest overlaps about 40 percent of the proposed Yellowbank Slough Refuge study area. ACEC expressed an interest in forming a partnership with the Service.

On March 31, French met in Shawneetown, Illinois with the Agricultural Conservation and Environmental Center (ACEC) Executive Staff and Board of Directors. French provided ACEC representatives with a status report concerning the proposed Yellowbank Slough Refuge.

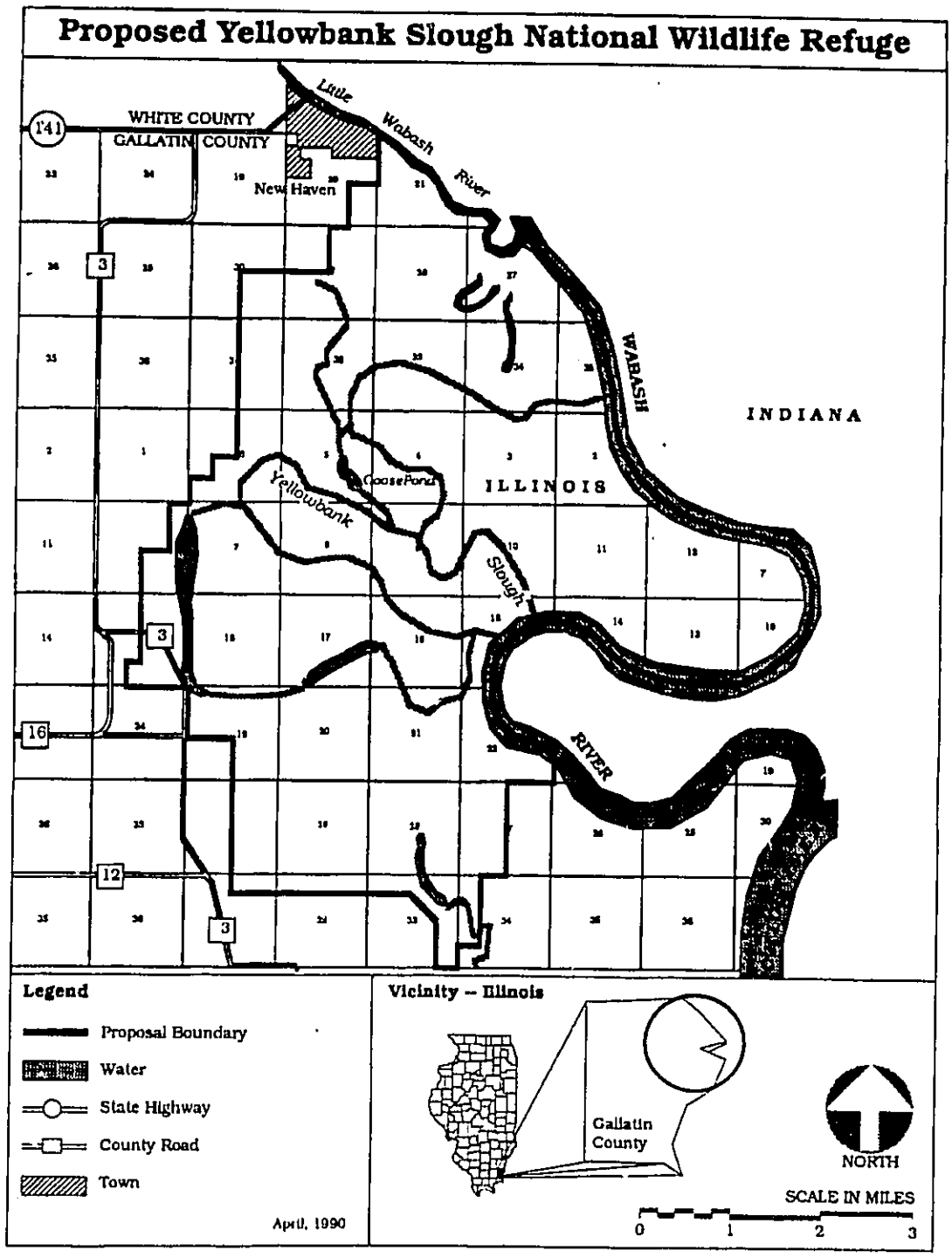
The Project Manager participated in a press conference that was hosted by the Agricultural Conservation and Environmental Center with the Agricultural Press Association on April 15, in Inman, Illinois.

RM French and representatives from the Agricultural Conservation and Environmental Center met in August with representatives from the offices of Congressman Poshard, Congressman Costello, Congressman Durbin, and Senator Simon concerning the Yellowbank Slough Refuge and ACEC initiative.

The Draft Economic Assessment was released September 17 for public review. Copies were sent to all landowners and individuals on the mailing list. A public information meeting was held in the Gallatin County Courthouse to present and discuss the draft assessment. About 40 people attended the meeting.

The Final Economic Assessment was released October 14 for public review. Copies were sent to all landowners and individuals on the mailing list. A public information meeting was held at the Gallatin County Farm Bureau office in Ridgway, Illinois. About 35 people attended the meeting.

Figure CTQ-5, Proposed Yellowbank Slough Refuge Study Area, Gallatin County, Illinois.



Proposed Kaskaskia River National Wildlife Refuge, Clinton, Washington and St.Clair Counties, Illinois

The Kaskaskia River National Wildlife Refuge (Refuge) is being proposed to preserve valuable bottomland habitat along a portion of the Kaskaskia River. The Refuge would be established under the authority of the Emergency Wetlands Resources Act of 1986 to protect, restore, and manage wetlands while providing migration and breeding areas for waterfowl, other migratory birds, and resident wildlife.

The Refuge could make significant contributions to the goals of the National Wetlands Priority Conservation Plan and the Lower Mississippi Valley Joint Venture of the North American Waterfowl Management Plan. The 10,240 acre Refuge proposal is centrally located in Clinton, Washington, and St. Clair counties in southwestern Illinois (Figure CTQ-6). The Refuge would be located in the Kaskaskia River floodplain and be composed of numerous oxbows, old river channels, mature lowland forest, lakes, and marshes.

The area is one of the largest remaining sections of oak-hickory bottomland forest habitat in the Midwest. The small marshes and lakes, oxbows, and post oak-prairie habitat are scattered throughout and around the project area. Portions of the habitat still remain in a pristine state, never having been farmed or logged. The area is of extremely high value for migrating and breeding birds, fish, and resident wildlife.

Surveys and evaluations made by the Illinois Natural History Survey revealed the area to be of high quality habitat for all forest wildlife species, particularly those species requiring large tracts of land such as the State endangered river otter and Mississippi kite, State threatened bobcat, and several passerine and waterbird species.

The proposed Refuge is close to several densely populated cities. Agricultural and urban development could potentially threaten the integrity of the habitat of a large, contiguous tract of bottomland hardwoods. Clearing of the forested areas for conversion to other uses has occurred in the past and will continue to threaten the remaining habitat. If protected and developed, the area could benefit the fish and wildlife resource while providing for increased public recreation and educational opportunities within the Saint Louis metropolitan area.

On February 19, RM French initiated an environmental and economic analysis of a range of alternatives, one of which could result in the establishment of a National Wildlife Refuge in the Kaskaskia River basin. Alternatives under consideration included no action, or any combination of a

private lands assistance program, easement program, National Wildlife Refuge or technical assistance office. There has been a tremendous amount of public concern and interest in the proposal.

The first public information exchange for the proposed Refuge was held in St. Libory, Illinois, on February 19. Rather than an expected attendance within the range of 50 to 100 individuals, about 425 to 450 people converged on the American Legion Hall to voice their opinion. Fortunately, it was a very large hall that was capable of handling the turnout. It was an extremely spirited meeting. The purpose of the meeting was to apprise the public of our interest, intent, and resource objectives and to establish a line of communication within the project area. Each of these was accomplished.

On March 30, French met in Belleville with the Illinois Farm Bureau (IFB) and County Farm Bureau (CFB) representatives from Washington, St. Clair, and Clinton counties to discuss the proposal. As a courtesy, Len Gardner, Executive Director for the IFB, has requested the CFB representatives to work with the Service during the study process.

Also on March 30, French was invited to the Okaw River Basin Coalition (ORBC) annual meeting. The Kaskaskia River used to be named the Okaw River. Over 700 people packed into another American Legion Hall to attend a well organized "Rally and Roast". They even flew in a gentleman from Sacramento, California to confuse the issue. It appeared they followed the old adage "The farther the speaker travels, the better the expert". The speaker used several documents out of context and many of his other "facts" were incorrect.

The ORBC is a private nonprofit group that initially organized to have influence over the management of U.S. Army Corps of Engineers (COE) projects within the Kaskaskia River basin. Historically, the membership of the ORBC has been less than satisfied with the performance of the COE. Since their formation, the operation of the five COE flood control and navigation projects have been more compatible with the wishes of the ORBC. In recent years the ORBC has not been very active. Since the Service announced its interest in the area, the ORBC has swelled from less than 200 to over 1,000 members.

On April 7, RM French participated in a Kaskaskia River basin planning meeting held in Springfield, Illinois. The COE was conducting a reconnaissance study on the Kaskaskia River basin. It was recommended that we proceed at the same pace as the COE. In general, the COE proposal and the Service were on track. At a minimum, the Service will get some excellent baseline information that will prove valuable when the environmental documents are initiated.

On April 10, RM French was a guest on a radio talk show held in Nashville, Illinois. The topic was the Kaskaskia River proposal.

Also on April 10, RM French met in Nashville, Illinois, with residents, elected officials, and government agency personnel from Clinton, Washington, and St. Clair counties to discuss the Kaskaskia River proposal.

On April 28, RM French participated in a meeting that was convened in the Regional Office to discuss the Kaskaskia River proposal. There has been a plethora of general and controlled correspondence. An Environmental Impact Statement will have to be prepared due to the sensitivity of the proposal. Efforts focused on assembling much needed information and developing a range of alternatives in cooperation with interested individuals and organizations. Activities were coordinated with the Okaw River Basin Coalition and the Southwestern Illinois Resource Conservation and Development Council as a member of a multi-disciplinary committee. The committee was composed of about 25 individuals from the agricultural community, elected officials, special interest groups, and State and Federal agency personnel.

RM French met with Congressman Costello (Illinois - District 21) twice during April. Congressman Costello is comfortable with and supported the committee approach. There was agreement that an attempt must be made to merge a variety of issues or interests in the Kaskaskia River basin.

On May 4, RM French again met with Congressman Costello to discuss the Kaskaskia River study.

On May 12, RM French had to slip out of the WAM JAM meeting in Toledo, Ohio, to fly from Detroit, Michigan, to St. Louis, Missouri, to attend a one hour meeting with several sportsmen's clubs in the vicinity of Mascoutah, Illinois. RM French flew to St. Paul, Minnesota, for the night and returned to the WAM JAM first thing in the morning.

On May 26, RM French attended the monthly Southwestern Illinois Resource Conservation and Development Council (SIRCDC) meeting held in Mascoutah, Illinois. The SIRCDC has agreed to serve as a facilitator for a committee that will be assembled for the purpose of addressing conservation and economic development opportunities in the Kaskaskia River basin. The Kaskaskia Private Lands/Resource Initiative (KPLRI) will address a wide range of issues in the basin, not just Service initiatives. The KPLRI and the SIRCDC will reduce the visibility of the Service and ultimately improve the exchange and collection of information. The creation of the KPLRI was a planned action. The Service's resource

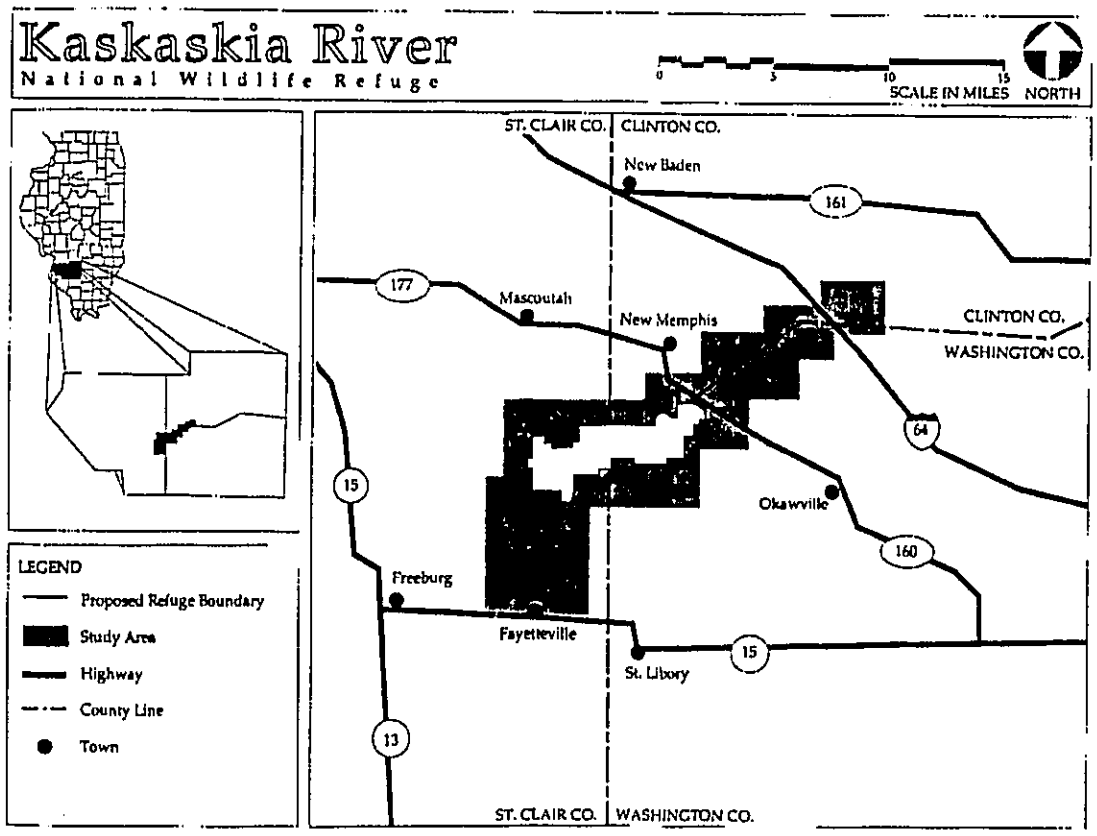
protection initiative has not been "sentenced" to a committee. It will be solved by the committee.

RM French met with representatives from the St. Clair, Clinton, and Washington County Farm Bureaus in the St Clair County Farm Bureau building on July 9 to discuss the Kaskaskia River project.

RM French met with the Kaskaskia Private Lands/Resource Initiative Committee in Mascoutah, Illinois, to discuss alternatives to the proposed Kaskaskia River Refuge on the last Thursday of each month beginning July 23. Meetings were held each month thereafter.

Public interest in the Kaskaskia River proposal demanded a significant amount of time during the year. The level of interest in the proposed Kaskaskia River Refuge exceeded the time commitment for Cypress Creek Refuge, Yellowbank Slough Refuge, and Emiquon Refuge combined.

Figure CTQ-6, Kaskaskia River National Wildlife Refuge, Clinton, Washington and St. Clair Counties, Illinois.



D. PLANNING

3. Public Participation

A public meeting was held on February 26, 1992, at the Refuge Headquarters to solicit input for the Lake Chautauqua commercial fishing program. Seven individuals attended the meeting, and provided suggestions for the program.

4. Compliance with Environmental and Cultural Resource Mandates

U.S. Army Corps of Engineers permit applications were approved for two projects: Lake Chautauqua levee rehabilitation, and construction of a wooden boardwalk and overlook within the floodplain on the Chautauqua Nature Trail.

5. Research and Investigations

The Illinois State Museum Research and Collection Center was awarded a contract in September 1992 to inventory archeological collections for both Chautauqua Refuge and Meredosia Refuge.

Liverpool Lake Archeological Site

As required under the Special Use Permit 15031 issued in 1987, Duane Esarey of the Illinois State Museum at Dickson Mounds filed an annual report of their archeological findings for the Liverpool Lake site. Two visits were made to Liverpool Lake in 1992. A June 5 visit revealed human bone eroding from the site. A number of pit features were also recorded. All were mapped, recorded, and collected. A September 8 visit was a general examination of the site to assess its condition and collect exposed cultural materials. The materials included: pottery sherds, a deer scapula and vertebra, freshwater mussel shell, fire-cracked rock, ceramic pipe, distal end of human fibula, and baked clay.

Human remains were first discovered at the Liverpool Lake site (IAS #11 Mp 163) in August 1986, when a pair of human tibias, presumably originating from a burial, were found lying together on the shoreline during low water. Human remains were also found in non-burial contexts in a number of pit features during a 1988 salvage excavation conducted by Western Illinois University.

The Liverpool Lake site is of considerable archeological importance because of its size, complexity, and essentially

single-component nature. The site is located on Chautauqua Refuge along the east bank of the Illinois River opposite the Town of Liverpool, Illinois. Prehistoric artifacts and features have been documented along at least 600 meters of shoreline. Preliminary analysis of the artifacts indicates a circa 700 to 1000 A.D., Maple Mills Phase Village. Although several other large Maple Mills habitation sites are now known, each has occupational components of other cultures present. None of these sites have the integrity of the Liverpool Lake site. Likewise, although erosion at many other sites along the Illinois River is critical, none of the other major sites appear to have their in-situ features and material remains eroding like they are at the Liverpool Lake site.

As part of the Lake Chautauqua Environmental Management Program (EMP) project, 200' along the northern edge of the Liverpool Lake site will be protected along the River in conjunction with a rock water control structure. The site will be covered with riprap to preserve it and protect it from further erosion and degradation by the Illinois River.

In September 1992 the Illinois State Museum Society (ISMS) submitted a proposal "National Register Evaluation of the Liverpool Lake Site, Chautauqua N.W.R., Mason County, Illinois." The proposed scope of work was funded and could provide the information necessary to determine if the Liverpool Lake site is eligible for nomination to the National Register of Historic Places. If so, the ISMS will assist the Fish and Wildlife Service to develop a management plan for site protection.

Survey For Contaminants in Sediments and Fish at Selected Sites on the Illinois River and Tributaries.

The Rock Island, Illinois, Ecological Services field office completed their "Survey for Contaminants in Sediments and Fish at Selected Sites on the Illinois River and Tributaries" in 1992. In general, Chautauqua Refuge exhibited low contamination levels (acceptable) in the sediment and fish.

Long Term Resource Monitoring Program

In conjunction with the EMP program and the Habitat Restoration and Enhancement Program, the Long Term Resource Monitoring (LTRM) program has continued to collect baseline data on Lake Chautauqua. LTRM is funded by the COE under the EMP program (see Section D6). Since 1989, LTRM has collected water quality data from four sites in Lake Chautauqua and one site in the Liverpool Ditch. Data indicate that Lake Chautauqua has extreme turbidity levels due to wind and wave action and shallow water. Turbidity levels were found to be higher in the summer (due to low water) than in the spring,

which is traditionally the most turbulent period.

Vegetation studies have been conducted since spring of 1990. Plant species and community dynamics are the primary concerns. Plant species in Lake Chautauqua are nearly non-existent due to the constant turbulence from wave action and the severe sedimentation problem. A 1951 study determined that an average of 85,000 tons of sediment was deposited in Lake Chautauqua each year. LTRM studies on the physical characteristics of sediment and habitat affecting aquatic plant distribution show that Lake Chautauqua has the soft sediments and turbidity characteristic of Illinois River backwater lakes. Laboratory particle size analysis of the sediments found in Lake Chautauqua and most backwater lakes along the Illinois River are composed of a 50:50 mix of silt and clay.

Fisheries collection began in 1991. Several methods of fish collection were used to identify as many species as possible and to identify community structures, and how they change. The baseline data that is collected prior to completion of the EMP project will then be compared with data collected after project completion. The bioresponse monitoring will continue for three years after completion of the project while water quality monitoring will continue until 2001.

The final report "Preliminary Cultural Resources Identification and Predictive Modeling for the Chautauqua, Cameron, and Meredosia Wildlife Refuges, Mason, Marshall, Morgan and Cass Counties, Illinois." from Western Illinois University was completed in 1988 and was finally submitted to the Regional Office in December.

Survey of Shorebirds

Shorebird censusing on Lake Chautauqua during 1992 provided baseline data for population numbers and species diversity. The study also documented impacts of flooding during the shorebird migration period. This baseline data, along with future data, will be used to compare shorebird populations and diversity with water levels and habitat conditions.

This study was funded by Nongame Bird ($400), and Joint Venture ($2,000) monies. The Illinois Natural History Survey, Forbes Biological Station, was the contributing Partner.

Badger Research Study

A study of badger ecology conducted by Illinois Natural History Survey continued on and around Chautauqua Refuge in 1992. This year the study focused on 5 adult female badgers equipped with radio transmitters.

Two of these badgers have home ranges that include portions of the eastern shore of Lake Chautauqua. Preliminary findings corroborate earlier conclusions that badgers in Illinois occupy larger home ranges than in other parts of the Country.

Future plans include continued monitoring of badgers in the area in the hope of gaining insight into why individual badgers range over such large areas in Illinois.

6. Other

Environmental Management Program (EMP) - Lake Chautauqua Levee Restoration and Enhancement

The Lake Chautauqua Levee Restoration and Enhancement - Environmental Management Program began as a dream in 1988. In 1992 that dream became reality, as $ 8.0 million (Table CTQ-3) was approved over a four year period to restore water management capabilities to Lake Chautauqua (Lake). The Environmental Management Program is funded by the COE. Congress funded the EMP program with $9.0 billion to restore habitat that had been impacted along the Upper Mississippi River and the Illinois River by construction of the locks and dams system. Intensive planning efforts that jumped hurdles and overcame many obstacles throughout the last four years, finally reaped its rewards as the project was approved and construction began.

Table CTQ-3, Funding Schedule - Lake Chautauqua EMP Project.

FY - 1992	$ 1.182 million
FY - 1993	4.161 million
FY - 1994	2.372 million
FY - 1995	.291 million
TOTAL	**$ 8.006 Million**

The project will include: raising 4.5 miles of levee from 446 mean sea level (MSL) (5 year flood event) to 449 MSL (10 year flood event); completion of a cross dike with pumping capability that will divide the Lake into a 2,400 acre moist soil impoundment on the south end, and a 1,200 acre, deep water (5-6 feet) impoundment for fisheries and diving duck habitat on the north end. A new 20' wide four bay stoplog structure will be constructed in the south levee for gravity drainage. The completion of this project (scheduled for June 1995) will create unprecedented water management capabilities on Lake Chautauqua. The water management program will be

expanded to allow concurrent management activities that will create quality fisheries, diving duck, and dabbling duck habitat as well as shorebird and wading bird habitat within the 3,600 acre Lake.

As stated earlier, the EMP project had to successfully negotiate many hurdles and obstacles before construction began. On January 16, an EMP planning meeting was held in Springfield, Illinois, at the Department of Transportation (Transportation) office with representatives from the Service, COE Rock Island District, Department of Conservation (Conservation), and Transportation. The purpose of the meeting was to address Transportation's denial of a permit for the Lake Chautauqua EMP project. During a 10 year event the project was projected to raise the flood crest by a mere .48 of an inch. Anything above the 10 year event hydrologically obscured the proposed levee. All the other levees in the affected area were 200 to 500 year levees.

Their denial to raise the four and one-half miles of levee from 446 MSL to 449 MSL was based on policy that no further impacts could be sustained within the floodplain. Planning efforts and fiscal requirements were nearing a critical stage and the denial of the permit was jeopardizing the project.

The final outcome of the meeting was dependent on which hydrologic model the COE used in determining the projected impacts of the EMP project, the project could show a positive or negative or zero impact within the floodplain. The COE engineers resubmitted the HECH-1 model rounded off to the nearest one-tenth of a percent, which is all that is required by Transportation. By rounding off the 0.04 foot impact down to 0.0, the model showed no hydrologic impact. Transportation reviewed the calculations and approved the permit in July.

A final planning meeting was conducted on February 13 with COE engineers and planners. It was a very productive session. The entire project was discussed in great detail. Each component of the project was carefully reviewed.

The EMP project was scheduled to be released for bids in July. However, toward the end of April, the status of the Liverpool Ditch as a viable project feature became questionable. The reaction of a Illinois Department of Conservation fisheries biologist was somewhere between volatile and volatile. The fisheries biologist suggested that the project was not worth doing unless the Liverpool Ditch feature was approved. This part of the project was to provide flowing side channels for riverine species. The fisheries biologist temporarily lost sight of the 85 to 90 percent gain (Lake Chautauqua) due to the 10 to 15 percent loss (Liverpool Ditch). The fisheries biologist's supervisor was advised of the possible

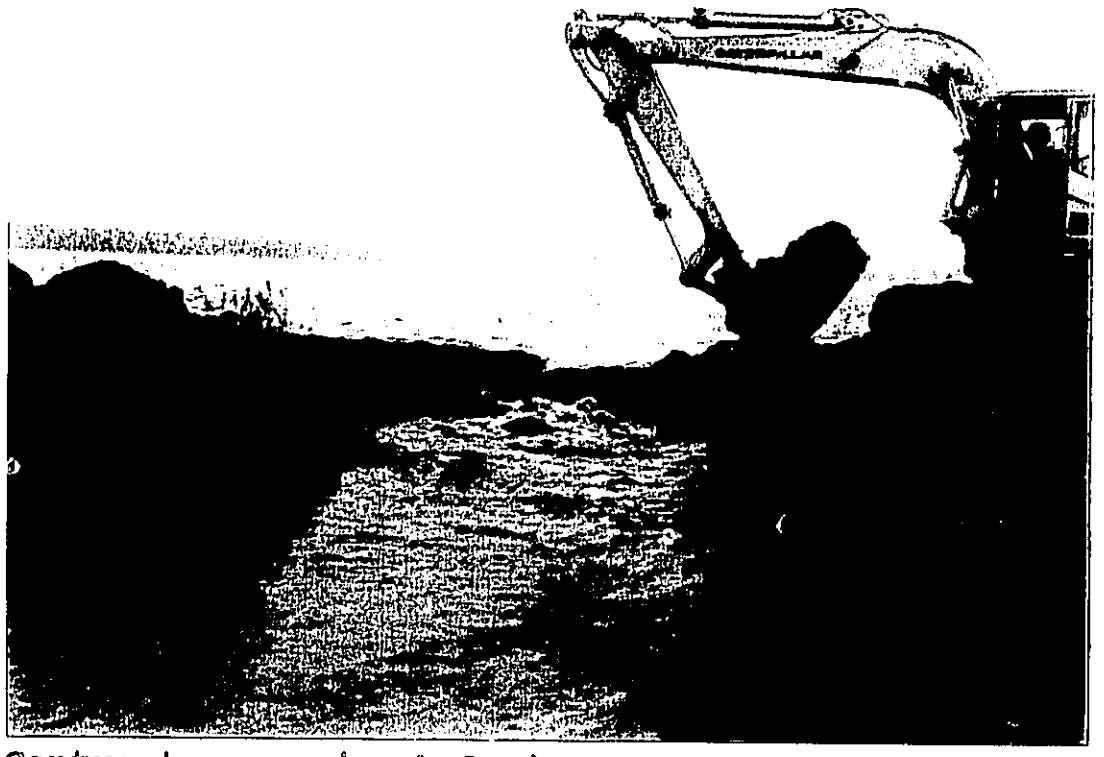
ramifications of such an attitude, and that disapproval of the project by Conservation at this point in time would possibly jeopardize $4.0 million in funding for the project in FY 92. On May 4, RM French met with IDOC personnel in Springfield, Illinois, to discuss the deletion of the Liverpool Ditch. The problem was resolved.

The EMP project received final approval in May by the COE Washington Office, and received final approval by the Department of the Army on July 3. They did not approve the Liverpool Ditch excavation portion of the project allegedly due to the cost. EMP project specifications were sent out for bids on July 1, for a 60 day period. The Lake Chautauqua EMP contract was awarded on September 1, to D & M Earthmoving, Plymouth, Illinois, for $4,151,975.

An EMP preconstruction meeting was held on October 16, and on October 21, the contractor excavated a 15 foot hole in the south levee to begin dewatering for construction of the new stoplog structure. The hole was widened to 45 feet on October 23. Just when we thought the EMP project was on a roll, the old brown stuff hit the fan, once again. Waterfowl hunting season was to begin in just nine days. Local hunt clubs began an onslaught of telephone calls to the Refuge and the Congressional offices. The hunters were concerned that all of the waterfowl would leave the area because Lake Chautauqua was being drained. No amount of assurances would appease the waterfowl hunters. Hunters demanded that the project be delayed until after the duck season passed, which was November 29. The rumor mill abounded with sordid stories about refuge management. Election day was only 14 days away, and the Congressional offices were sensitive to any controversy.

There was a lot of quality time spent conversing with the Congressional offices. The primary reason that the Lake had to be drained at this particular time was due to the hydrology of the Illinois River. During November and December, historical records show that it was probable that the River would flood Lake Chautauqua. Since the construction site had to be dry to construct the new water control structure, flooding of the Lake would delay this part of the project one entire growing season.

The crossdike pump station site also had to be preloaded with base material, which was required to settle for six months prior to construction of the concrete base. If the site was not preloaded this year, it could delay the pump station for two growing seasons. Rain began falling during the opening week of duck season, and by November 10, the Illinois River began topping the Lake Chautauqua levee. Flood conditions remained through the end of the year and prevented any further construction on the project.



Contractor opening hole in south levee to begin dewatering for construction of the new stoplog structure.
10/21/92 RE

Water rushing from Lake Chautauqua into Quiver Creek following opening hole in south levee.
10/92 EE

An interesting highlight of this ordeal was that the October 26, aerial census showed that waterfowl populations (78,000) were at a nine year high on Lake Chautauqua, due primarily to feeding opportunities made available to ducks on the exposed mudflats. Frank Bellrose, local resident and internationally known waterfowl biologist, accredited the high number of waterfowl feeding on the mudflats to two factors: 1) previous studies have shown that approximately 2,000 seeds per square yard are available within the sediment; and 2) waterfowl expend less energy during windy conditions by feeding on mudflats because they do not have to expend energy swimming against the constant wave action caused by the wind.

When local hunters learned of the record number of waterfowl feeding on the mudflats, they complained that their hunting was poor because the birds remained on the Refuge to feed. Who was it that said "We can't please some of the people, any of the time"?

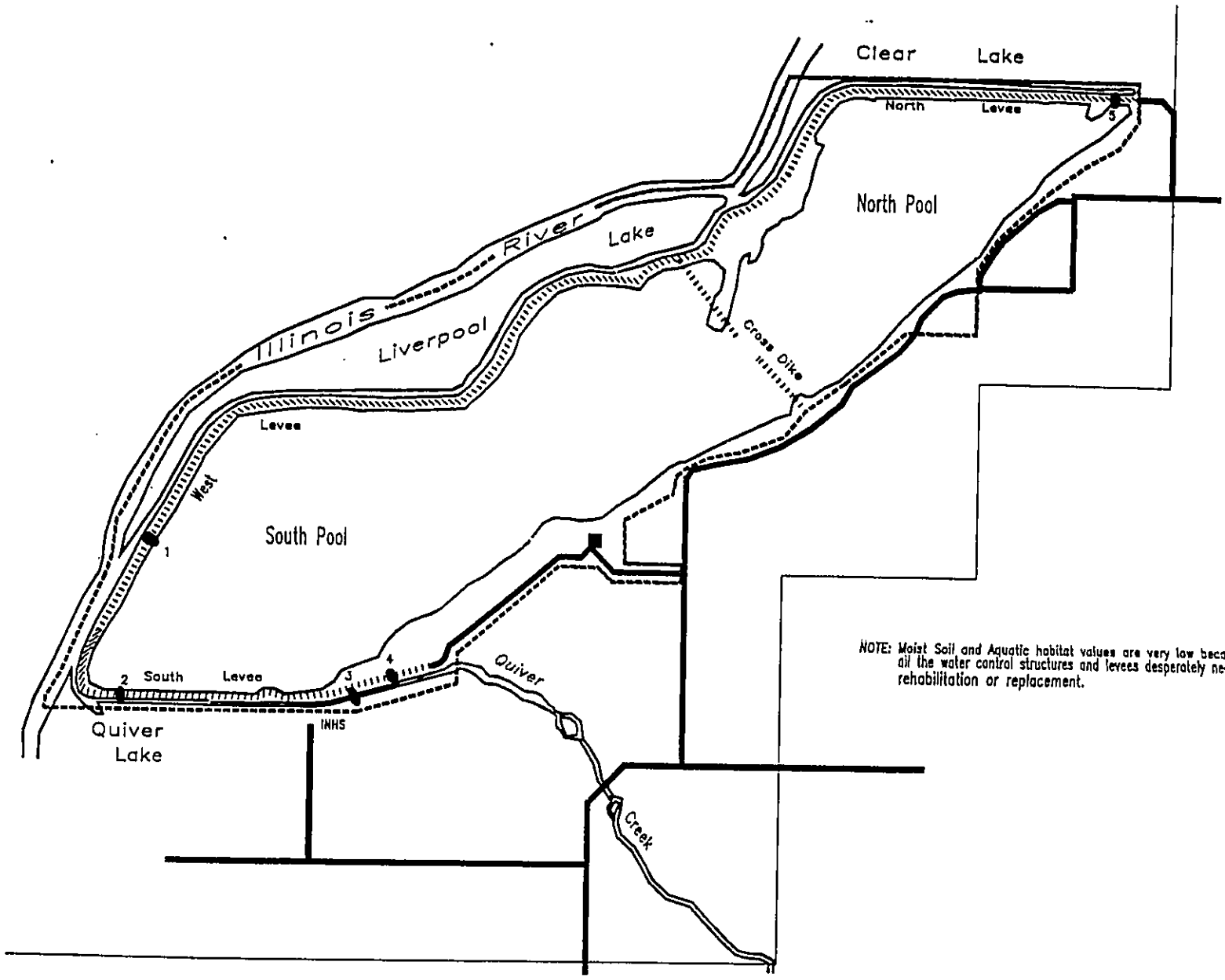
Vision

The Illinois River Refuges Management Team developed habitat, facility, and administrative **Goals** for Chautauqua Refuge.

Goal: Construct or restore the water management structures necessary to simulate a more natural hydrological process in Lake Chautauqua to create a selection of the historic water regimes. Cultivate and perpetuate the presence of natural and productive floodplain wetland and aquatic plant communities in support of fish and wildlife, particularly migratory birds. Assemble the appropriate funding, equipment, and management team needed to develop the programs, facilities, and structures required to realize our goal.

The goal is structured to contribute to the **General Vision** and the **Elements of the General Vision** for the Illinois River Refuges Complex. The goal is best presented graphically (Figures CTQ-7 and CTQ-8).

Figure CTQ-7, Chautauqua Refuge - 1991.



Key

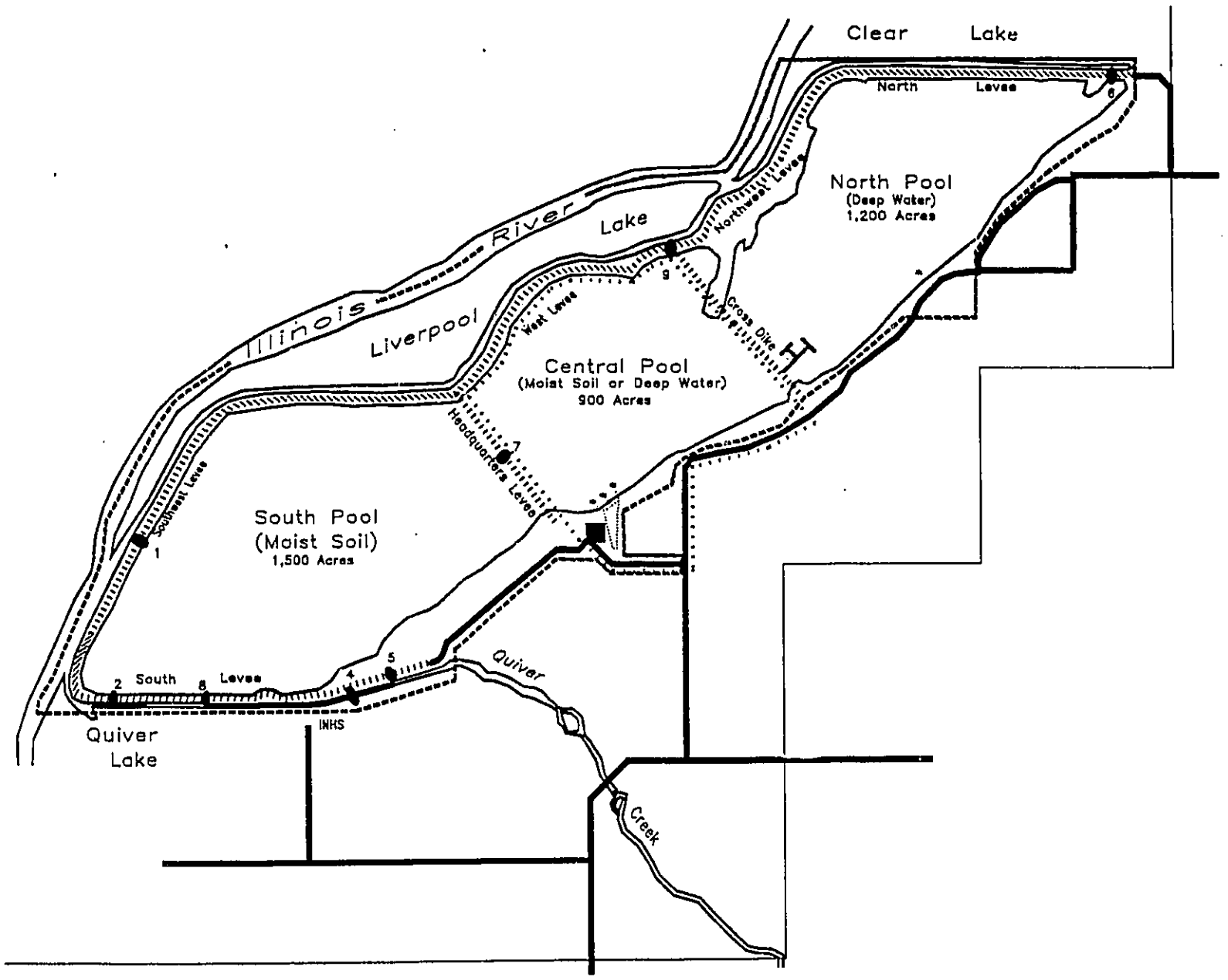
1 West Spillway 20' (4 bays)
2 South Spillway (437.5 MSL)
3 Quiver Creek Weir (439 MSL)
4 Box Culvert (3'x3')
5 Radial Gates 48' (4 bays)

West Levee (438 MSL)
South Levee (439 MSL)
Cross Dike (441 MSL)
North Levee (446 MSL)

Levee
Road
Refuge Boundary
Water Control Structure
Refuge Headquarters

0 1/2 3/4 1

Figure CTQ-8, Chautauqua Refuge - 1996.



Key

1 West Spillway (Remove)
2 South Spillway (440 MSL)
3 36" Culvert (Remove)
4 Quiver Creek Weir (439 MSL)
5 Box Culvert (3'x3')
6 Radial Gates 48' (4 bays)
7 Headquarters Structure 10' (Stoplog)
8 South Structure 20' (Stoplog)
9 Pump Station (5'x5' culvert, 40,000 GPM)

South Levee (442 MSL)
Southwest Levee (442 MSL)
Headquarters Levee (446 MSL)
West Levee (446 MSL)
Northwest Levee (449 MSL)
North Levee (449 MSL)
Cross Dike (449 MSL)

0 1/2 3/4 1

Levee
Road
Refuge Boundary
Water Control Structure
Refuge Headquarters
Overlook
Wheelchair Accessible Nature Trail
Auto Tour Route (Seasonal/Limited Hours)
Wheelchair Accessible Fishing Pier

E. ADMINISTRATION

1. Personnel

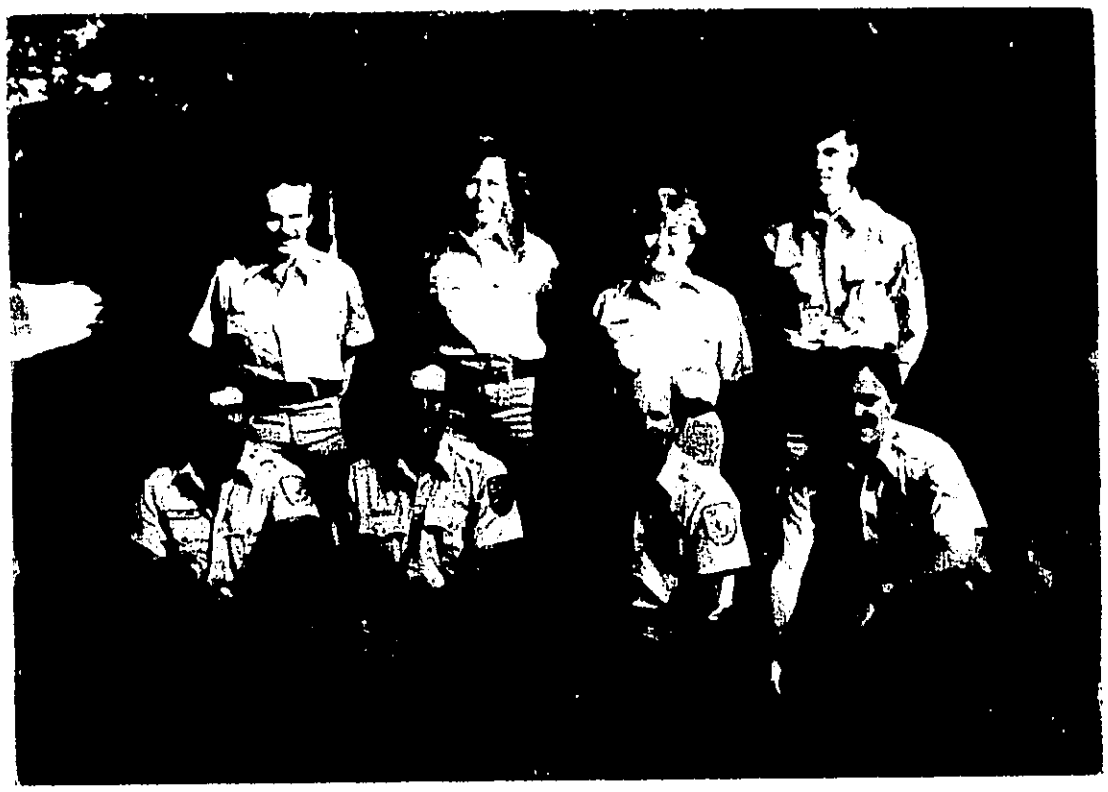
On March 23, Jon Stiltz began a 90-day appointment as a Biological Technician, GS-404-1. Jon's appointment was extended, and was completed on December 1.

ROS Bruce Freske was selected for the Refuge Operations Specialist position at Rainwater Basin Wetland Management District, Kearney, Nebraska. Bruce's release date was July 9.

MW Pittman was approved as a Heavy Equipment Instructor in October. Dale completed the requirements for the instructorship during several heavy equipment training workshops held during the year.

A Refuge Manager Trainee/COOP Education Student position was approved in June. Donna Hertlein, who is enrolled in the Masters Program at Southern Illinois University, Carbondale, Illinois, worked from June 8 to August 6. Donna will complete her final eight week period beginning January 4, 1993.

The vacant Refuge Operations Specialist GS-485-5/7 position was advertised through Office of Personnel Management (OPM), Chicago, from November 6 - 11. Recruitment efforts focused on reaching minority candidates. The Certificate was received with only two applicants. The position was readvertised December 6 - 11 through OPM.



Freske, Hertlein, Clanin, Stiltz
Pittman, Engelke, Britton, French

1. Andrew C. French, Refuge Manager, GS-485-12
   EOD 1/27/91.....PFT

2. Ed Britton, Refuge Operations Specialist, GS-485-11
   EOD 8/11/91.....PFT

3. Alice Clanin, Office Assistant (Typing), GS-0303-6
   EOD 6/20/66.....PPT

4. Dale Pittman, Maintenance Worker, WG-4749-8
   EOD 2/10/91.....PFT

5. Bruce Freske, Refuge Operations Specialist, GS-485-9
   EOD 2 /10/91....PCS 7/9/92.....PFT

6. Russell Engelke, Biological Technician, GS-404-5
   EOD 4/29/91.....TFT

7. Donna Hertlein, Cooperative Education Student, GS-499-5
   EOD 6/8/92.....TFT

8. Jon Stiltz, Biological Aid, GS-404-1
   3/22/92 - 12/1/92.....TFT

Table CTQ-4, Full Time Equivalents (FTE) - Chautauqua Refuge.

Year	Permanent Full Time	Permanent Part Time	Temporary Full Time	Total FTE
FY 1992	5	0	1	6.0
FY 1991	4	1	0	5.0
FY 1990	3	1	0	3.6
FY 1989	3	1	0	3.6
FY 1988	3	1	0	3.6

Awards

On January 21, RM French traveled to the Regional Office to receive a Special Achievement Award from Regional Director Gritman for his performance during the past three years.

MW Pittman and AT Clanin received Quality Performance Awards (Level 5 rating) for their exceptional performance during the year.

RM French, BT Engelke, and ROS Britton received Special Achievement Awards for their performance during the year.

The station received a safety award for another accident-free year. Each permanent employee received a cash award.

Workshops and Training

French	Special Achievement Award	01-20-92	Minneapolis, MN
	WAM-JAM V	01-29/30-92	Minneapolis, MN
	LE Refresher Training	03-27-92	Camp Dodge, IA
	Reg. Office Detail Acting WAM 1	04-27 to 05-11-92	Minneapolis, MN
	WAM-JAM	05-11/15-92	Ottawa NWR
	Cultural Diversity Training	09-15/16-92	Minneapolis, MN
	WAM-JAM	09-29 to 10-02-92	Minneapolis, MN
Britton	Region 3 Management Training Program	02-3/7-92	
	S-390 Fire	04-20/24-92	Minneapolis, MN
	Managing Multiple Objectives	02-28/30-92	Minneapolis, MN
	FmHA Conservation Easements	03-11-92	Springfield, IL
	LE Refresher Training	03-17/18-92	St. Louis, MO
	Heavy Equipment Training	03-23-92	Camp Dodge, IA
	Groundwater Protection Field Day	03-30/31-92	Carbondale, IL
	Cultural Diversity Training	05-01-92	Topeka, IL
		05-07/8-92	Minneapolis, MN

	Wetland Restoration Training	05-11/15-92	Sikeston, MO
	Integrated Wetland Workshop	10-27/29-92	Puxico, MO
	Firearms Qualification	10-16-92	Annada, MO
Freske	Federal Law Enforcement Training Center	01-31 to 02-07-92	Glynco, GA
	Managing Multiple Objectives	03-11-92	Springfield, IL
	Heavy Equipment Training	03-30/31-92	Carbondale, IL
	Groundwater Protection Field Day	05-01-92	Topeka, IL
	Wetland Invertebrate Workshop	05-04/7-92	Puxico, MO
Clanin	Managing Multiple Objectives	03-11-92	Springfield, IL
	Vendor Training Seminar	05-05-92	Peoria, IL
Engelke	Heavy Equipment Training	03-30/31-92	Carbondale, IL
	Integrated Wetland Workshop	10-27/29-92	Puxico, MO

2. Youth Programs

Youth Conservation Corps (YCC)

The Youth Conservation Corps (YCC) extended from June 8, to July 31, with five enrollees. A total of 26 applications, 15 male and 11 female, were received for the positions. The honor of pulling names from a hat fell to the Mayor of Havana. Three males and two females were drawn. The Refuge was funded only for two YCC positions, but the amount of work that was needed required that three additional positions be funded out of station funds.

On May 7, a mandatory orientation meeting was held so that the enrollees could fill out the appointment forms and get acquainted with staff. BT Engelke administered and supervised YCC.

The YCC accomplished a tremendous amount of work that included: painting the old and new oil houses, two grain bins, and inside of the headquarters shop; and the YCC cleaned the exterior of the headquarters building and the north garage. Many hours were spent working on the Chautauqua Nature Trail hauling limestone, rock, putting up wooden railing, and working on the overlooks.

Chad Houston, Kirk Garman, Joe Pittman, Larissa Seward
8/92 RE

The usual amount of minor cuts, bruises and poison ivy occurred. One YCC enrollee received a puncture in the foot when she unknowingly stepped on a nail protruding from a board that had been buried by accident in the sand. She missed a half day of work and was put on light duty for four days.

ROS Amy Sprunger and the YCC enrollees from Wapello District (Mark Twain NWR) arrived on July 22, to tour Chautauqua Refuge and see first hand the projects our crew accomplished this summer.

3. Other Manpower Programs

Community service workers from the Mason County Probation Office began court appointed public service work on May 20. During 1992 a total of four workers "volunteered" 45 hours. It quickly became apparent that this program was not a good source of dependable labor. "Volunteers" are usually given up to three years to complete 100 hours of public service. They are not required to complete any regular number of hours of work and usually would not return to the Refuge after completing only a few hours of work. During May, three workers "volunteered" a total of 27 hours, and during June one worker "volunteered" 18 hours.

Since November 1991 we have had an agreement with an adjacent

landowner, Jean Godby, to lock and unlock the Refuge entrance gate. During the winter, Mrs. Godby locked and unlocked the gate at sunrise/sunset on weekends and federal holidays. During the spring, summer, and fall, she locked/unlocked the gate seven days a week. Payment was $3.00 per day of service. This arrangement provided greater security for the headquarters building. Total cost for 1992 was $980. A new electronic gate operated by a photo sensitive system will replace the present method in 1993.

4. Volunteer Program

Havana Boy Scout Troop #166 Havana, Illinois, received the 1992 Volunteer of the Year Award. Troop 166 donated a total of 96 hours working on the Chautauqua Nature Trail, and providing assistance at the trail dedication. The Volunteer of the Year Award was started in 1991, when the Astoria Schools Astoria, Illinois, won the honor. During 1992 a total of 272 individuals volunteered 999 hours to the Refuge.

Earth Day was celebrated on Saturday, April 25. Although the weather did not cooperate, the cold and intermittent rain showers did not dampen the spirit and enthusiasm of the volunteers. A diverse group showed up that included: Astoria Schools (36 individuals), Havana Webelo Scout Den #7 (12), and Havana Power Plant (4). A total of 52 individuals volunteered 305 hours of work during this one day event. Work was completed on several Refuge projects. An additional 2,600 prairie plant rootstocks were added to the three prairie restoration sites that were initially planted as an Earth Day activity in 1991.

Another project that was continued from last year was work on the Chautauqua Nature Trail. A total of 250 feet of trail was completed, another 150 feet of trail base was put in place, and 32 feet of raised boardwalk was completed. Also, many bags of litter were picked up from the Recreation Area. Local merchants (Oney's Foods and Day & Palin IGA) donated food for the Earth Day cookout. Volunteers roasted hotdogs and toasted marshmallows over an open fire during the luncheon.

Two school groups provided work crews for the continued construction of the Chautauqua Trail located adjacent the headquarters building. Twenty students and two teachers from the 7th and 8th grades at Browning School Browning, Illinois, worked for a total of 110 hours on May 12. The crew moved 30,000 pounds of crushed limestone and rock and spread it over the Trail.

Havana Boy Scout [illegible]
[illegible]
10/1/92 JR

Representatives from Astoria Schools, the 1991 Volunteer of the Year, on Trail Dedication Day.
10/17/92 JR

Refuge Manager French and Havana Scout Troop #166 building a stop on the Chautauqua Nature Trail.
4/92 RE

Volunteers from Astoria Schools hauling rock on the Nature Trail during Earth Day activities.
4/92 RE

Astoria Schools, from Astoria, Illinois, provided a work crew on May 24, consisting of 19 students, 3 teachers, and 5 other adults who combined to contribute 220 hours to the Refuge working on the Chautauqua Nature Trail (Trail). They hauled rock to complete a large part of the trail and constructed 32 feet of raised boardwalk.

The Gerlaw Christian Church, Cameron, Illinois, provided volunteer work on the Trail on June 11. Fifteen children (ages 10-12) and five adults worked for three hours on the Trail and collectively donated about 60 hours.

Fifteen members of the Forest City, Illinois, 4-H club volunteered a total of 45 hours working on the Trail on June 29.

We were notified in December that Astoria Schools was selected as a Region 3 "Take Pride In America" award winner for volunteer work at the Refuge. They were also selected as an Illinois "Take Pride In America" award winner. Only seventeen winners were selected in Illinois for the Governor's award. A January 1993 program is scheduled to present Astoria Schools with their awards.

5. Funding

Refuge funding for FY 1992 totaled $493,488 (Table CTQ-5).

Table CTQ-5, Funding - Chautauqua Refuge.

Funding $ (000)

FY	1120	1221	1230	1260	YCC 1260	2821	8421	8451	9120	8610	Total
1992	20.0	3.0	2.4	347.7		-	74.1	44.8	1.5		493.5
1991	3.0	1.0	1.7	293.0	4.2	-	16.0	32.5	1.1	5.9	358.4
1990	-	-	-	166.9	3.4	-	-	-	.4	3.2	172.7
1989	-	-	-	151.0	3.4	-	-	-	.1	3.2	157.7
1988	-	-	-	403.5	3.4	101	-	-	3.4	3.2	514.6

6. Safety

Monthly safety meetings were held throughout the year on a variety of topics. Due to the small staff at the station, there was no standing safety committee. Instead, one staff member was responsible for conducting the monthly safety meeting, reviewing any safety related correspondence received during the month, evaluating safety practices, and identifying any new hazards since the last meeting.

There were no accidents by permanent staff during the year; as a result, the station received an Award of Safety Accomplishment from the Regional Office.

All staff, including temporary, COOP student, and YCC enrollees, were tested during the year for Lyme's disease. All tests were within the accepted range.

BT Engelke, MW Pittman, BA Stiltz, and the YCC enrollees attended a four hour CPR refresher on July 31. That afternoon, Stiltz and the YCC crew also completed four hours of first aid training.

Two YCC accidents occurred during the year. A YCC enrollee stepped on a nail which punctured her left foot. The nail was attached to a board that was buried in the sand. The COOP student strained her back during night-lighting operations. She had bent over to start the generator by pulling on the starter cord when she suddenly fell backwards and sat down hard on the deck of the airboat.

8. Other

NEW NAME - ILLINOIS RIVER NATIONAL WILDLIFE AND FISH REFUGES

A request was submitted to Regional Office in October 1991 to combine the Chautauqua Refuge, Meredosia Refuge, Cameron-Billsbach Unit, and the proposed Emiquon Refuge into the Illinois River National Wildlife and Fish Refuges (IRF). The request was approved and the new name became effective in June 1992. The name change was needed to identify the Refuge's expanding role within the Illinois River Valley, and for administrative purposes whereby individual units would receive individual recognition in management and fiscal decisions.

Refuge Inspection

A friendly "Refuge Inspection" of the IRF program was scheduled for June 16 through 18. Team Leader Matt Kirschbaum expressed the "friendliness" of the inspection, rather than the old school inspection of white gloves looking for dusty shelves. Due to scheduling problems the entire team was not able to attend. The experience of the Refuge Inspection was enhanced by the birth of Daniel James French on June 17. Daniel is Kathleen and Andrew's second child.

The members of the team that attended were: Matt Kirschbaum, WAM2/Team Leader; Jim Mattsson, District Biologist; Carolyn Watts, Administrative Assistant, at Clarence Cannon Refuge; Suzanne Trapp, Regional Office Public Affairs; Chuck Suprenant, District Fisheries Biologist. The team agreed the

current direction that the Refuge was heading was appropriate, and that many new initiatives were being conducted. A "pat on the back and good job" were included in the team's closing remarks, along with 24 Action Items.

Biologist Jim Mattsson completed a second biological review for Chautauqua Refuge and Meredosia Refuge on July 1.

Refuge Revenue Sharing Payment

In June, a revenue-sharing check in the amount of $6,032 was presented to the Treasurer of Mason County for FY 1991. The payment was for 89.5 percent of the full entitlement (Table CTQ-6).

Table CTQ-6, Refuge Revenue Sharing - Chautauqua Refuge.

Fiscal Year	Payment	Percent	Fiscal Year	Payment	Percent
1991	$6,032	89.5	1986	$5,054	60
1990	$6,301	94	1985	$5,416	64
1989	$6,551	71	1984	$6,813	74
1988	$5,981	71	1983	$7,080	77
1987	$4,961	59	1982	$8,239	91

* Refuge lands in Mason County were reappraised in 1990 with the land value decreasing from $1,121,900 to $898,000. Values decreased due to the reappraisal of open water areas.

Seven Golden Age Passports and three Golden Access Passports were issued during the year.

The Refuge continued selling Migratory Bird Hunting and Conservation Stamps this year. A total of nine stamps were sold; seven to hunters and two to non-hunters.

F. HABITAT MANAGEMENT

1. General

The primary habitat on the Refuge is the 3,250 acre Lake Chautauqua, a backwater lake of the Illinois River floodplain. The Lake serves as a flood storage reservoir for the River. Because a portion of the Lake Chautauqua levee was constructed too close to the River by the drainage district in the 1920's, the COE required that a spillway or setback levee be constructed to eliminate the bottleneck effect. The maximum permitted height of the spillway is 437.5 MSL, which is 4.5 feet below the permitted levee height of 442.0 MSL (a five

year flood event). Spillways were constructed in the 1930's to allow floodwater to pass through the Refuge. Erosion on the levee has been a problem since that time.

Lake Chautauqua has approximately 14.5 miles of shoreline which consists of about 9.5 miles of levee. Habitat management focuses on a drawdown of the Lake in summer for moist soil plant production. There are two primary water control structures: 1) the north radial gates that includes four 12' x 12' steel gates operated on a pulley system; and 2) the west stop-log structure that has three bays measuring 6' x 6'. The west structure is primarily used to drain the Lake, however, the sill is located two feet above the Lake bottom. This creates a serious problem for water management because approximately 80 percent of the surface area of the Lake is within two feet of the Lake bottom. There are two secondary water control structures in the south levee that include a 3' x 3' concrete culvert with screwgate and a 36" corrugated metal pipe.

The Ilinois River plays a very important part, usually adversely, in habitat management programs. Lake Chautauqua levees are only permitted to the five year flood event. Due to the lack of equipment and funding in past years, the levee has deteriorated and presently receives flooding several times each year. New equipment received during 1992 allowed us to start an ambitious program to rehabilitate the deteriorated levee system. Stay tuned.

2. Wetlands

Wetlands make up 72 percent of the Refuge, with Lake Chautauqua totaling 3,250 acres. Water levels in the Lake are primarily managed for production of moist soil habitat for waterfowl. Moist soil plants are largely composed of nut sedge, beggar-ticks, Walter's millet, smartweed, and rice cutgrass. Providing shorebird habitat is a secondary objective by exposing mud flats during the migration periods.

Water levels on Lake Chautauqua from January through March were near record lows. A mid-April flood occurred that extended into the first week of May. The 36 inch corrugated metal pipe in the south levee (initially installed in 1991) was lowered to an elevation of 1.5 feet below Lake bottom in May, and did a great job of draining the Lake below the 433.0 MSL elevation of the west spillway sill. Water levels reached 432.5 MSL by the end of June. This low level had not been achieved since 1984 when the west spillway was constructed.

Refuge staff took advantage of the low water level and repaired the crossdike in June. The crossdike had been

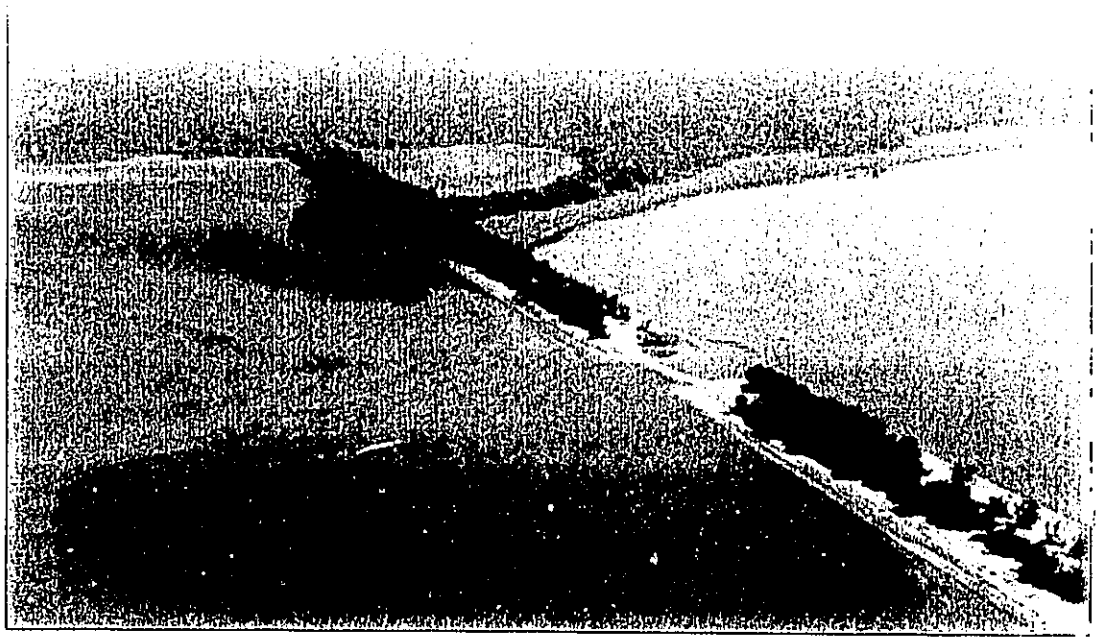
breached since 1968 (see section I.2). Repair of the crossdike allowed access to the west levee, and the opportunity to clear large trees from the levee and repair a 15 yard breach that had occurred years earlier. The breach could not be repaired prior to this time due to inaccessibility.

Approximately 1,000 acres of mudflats were exposed by mid-July and produced a bumper crop of moist soil plants. Due to the amount of water emerging from the hillside and underground springs flowing into the Lake, pumping operations were conducted at the water control structure, located in the crossdike. Pumping was conducted to gain as many acres of mudflats as possible, since each inch of water removed resulted in many acres (100 to 150 acres) of mudflats becoming exposed.

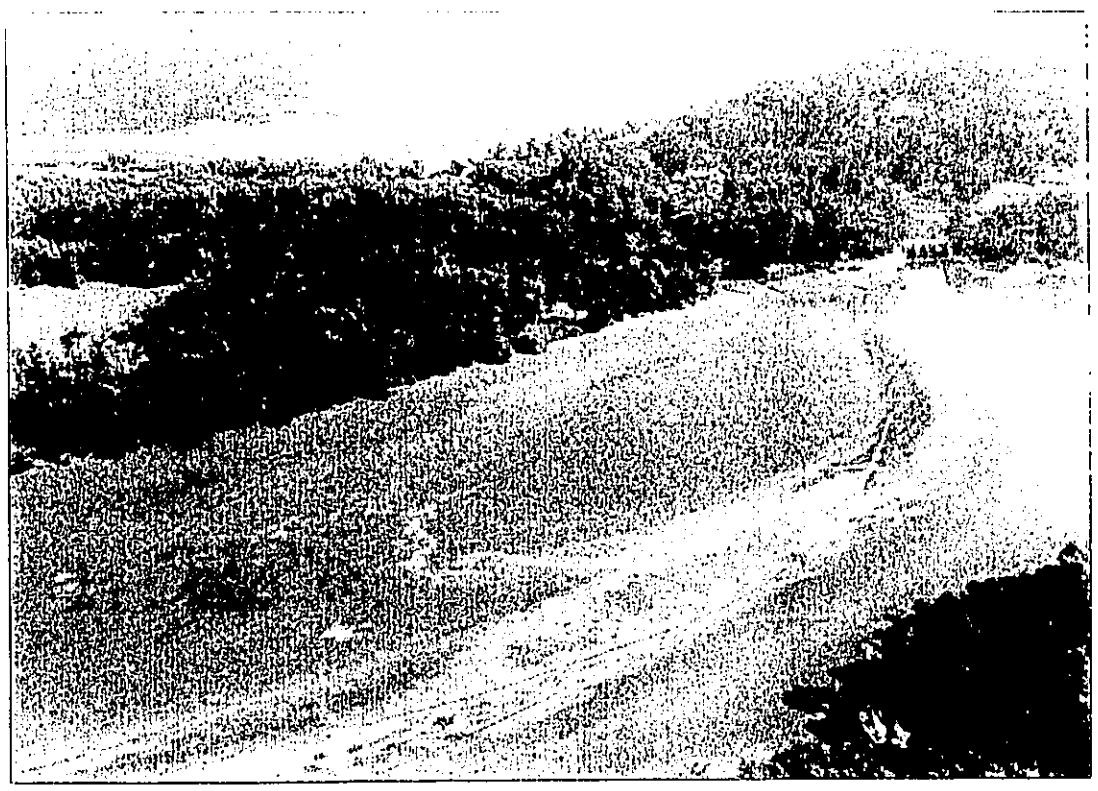
By the end of July continuous rains resulted in the flooding of the Lake. On August 1, high water in the south pool breached the recently repaired crossdike, and floated the 36 inch x 30 foot long CMP with stoplog structure approximately 30 meters into the north pool. A 50 foot breach in the crossdike occurred. The CMP was retrieved, and placed back in the crossdike, with repairs again closing the crossdike on August 18. In an attempt to lower the Lake as much as possible, both for moist soil production and mudflat exposure for shorebird use, the 16 inch Crisafulli was operated continuously for 13 days (August 18-31), to pump water from the south Lake into Quiver Creek.

Japanese millet was aerially seeded along 250 acres of Lake Chautauqua shoreline on September 1. The millet seed was two years old and had a "use or lose" status. The late date of seeding was due to high water levels resulting from the August flood. A late frost could have allowed some seed production. Although seed formation did not occur, it provided green browse and a vegetative substrate for invertebrates.

Lake Chautauqua water levels were at 432.00 MSL at the beginning of November. This level was 3 - 4 feet lower than normal operating conditions. Illinois River flood waters were lapping at the top of the west spillway by November 10, causing the west and north radial gates to be opened. Flooding of the Lake occurred throughout the rest of the year.



Break in crossdike was repaired providing access to the west levee.
6/92 AF



Mudflats showing on the north end of Lake Chautauqua.
6/92 AF

With the break in the crossdike repaired, it took another two days of clearing to reach the west dike breach.
6/92 AF

MW Pittman spent a day repairing the 15 yard break in the west levee.
6/92 AF

Table CTQ-7, 1992 Lake Chautauqua Water Levels (MSL).

Month	Average Elevation	High (Date)	Low (Date)	Differ. (feet)
January				
February		434.22 (19)		
March	435.43	435.73 (27)	435.12 (04)	.61
April	434.88	435.58 (02)	434.18 (16)	1.40
May	434.90	436.48 (05)	433.31 (29)	3.17
June	432.93	433.17 (01)	432.69 (26)	.48
July				
August	434.84	436.58 (07)	433.09 (31)	3.49
September	433.12	433.37 (28)	432.87 (08)	.50
October	433.13	433.37 (02)	432.88 (23)	.49
November			432.00 (05)	
December	440.23	441.32 (01)	439.14 (29)	2.18

Table CTQ-8, 1992 Illinois River Water Levels (MSL) Havana, Illinois.

Month	Average Elevation	High (Date)	Low (Date)	Differ. (feet)
January	433.4	434.5 (01)	431.9 (21)	2.6
February	434.1	436.4 (25)	432.3 (11)	4.1
March	435.1	436.2 (01)	434.0 (09)	2.2
April	434.6	436.6 (24)	433.1 (15)	3.5
May	432.7	435.9 (01)	430.6 (29)	5.3
June	430.8	431.7 (21)	430.3 (27)	1.4
July	433.3	437.7 (31)	430.2 (01)	7.5
August	433.3	438.0 (03)	430.2 (30)	7.8
September	433.1	435.8 (12)	430.2 (07)	5.6
October	431.3	433.5 (01)	430.4 (22)	3.1
November	437.9	441.3 (28)	430.9 (01)	10.4
December	439.4	441.2 (01)	437.3 (15)	3.9

Water levels in Quiver Creek

Fisheries researchers from the Illinois Natural History Survey Lab and Dan Sallee, Streams Project Manager for Illinois Department of Conservation, have expressed concerns about the ability of the Quiver Creek weir to allow fish movement upstream during low spring water levels. The weir has two 6 feet wide by 9 feet high bay openings.

Annual operating plans include the removal of the stoplogs in the weir prior to and during the spawning season, March through the first week of April. Stoplogs were removed in

January to prevent any impacts on fish movements. Low water levels are maintained throughout the spring and summer to allow for the production of moist soil plants. As requested, water levels were raised beginning August 31 to flood adjacent private hunt clubs for early teal season.

3. Forests

Chautauqua Refuge contains 1,127 acres of forest habitat that includes 977 acres of bottomland hardwoods, and 150 acres of upland forest.

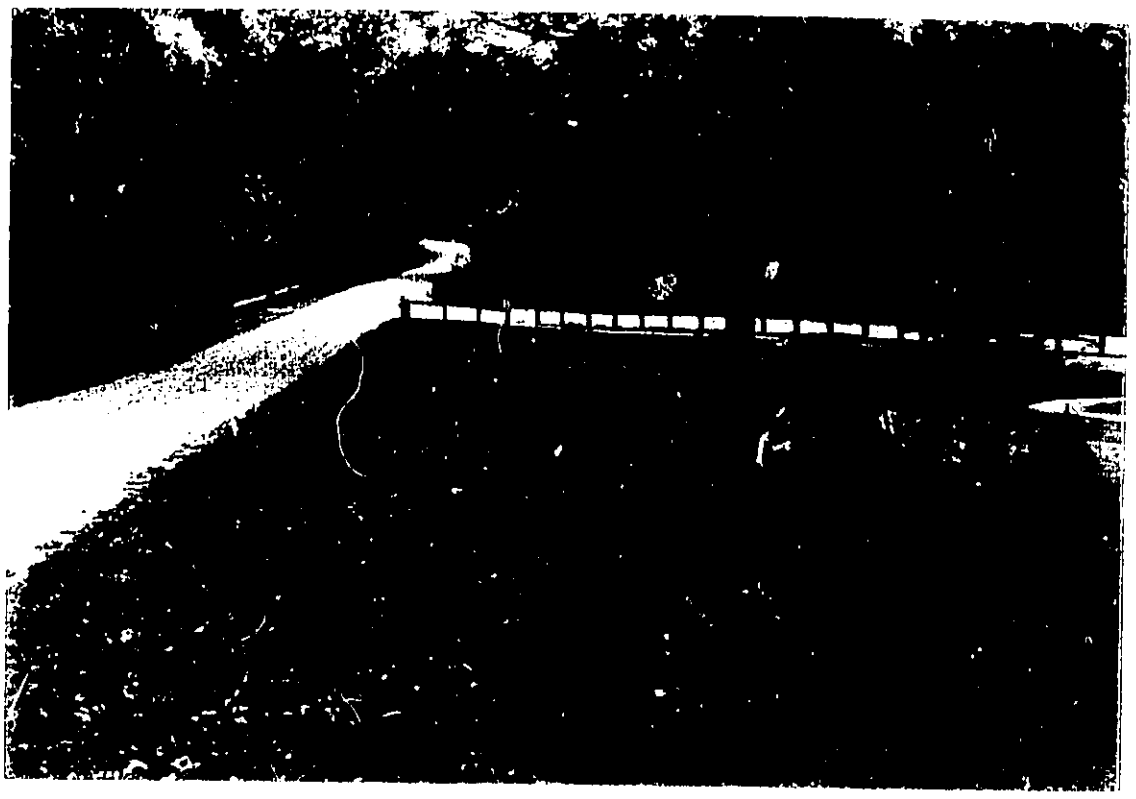
Day & Palin IGA grocery store in Havana, Illinois, donated 300 bald cypress trees on Earth Day under their "Plant A Tree Program". This geographic area is the very northern edge for bald cypress to occur naturally. The cypress trees were planted along the eastern shore of Lake Chautauqua beginning at the headquarters area and extending north to the crossdike.

5. Grassland

Three prairie restoration sites totaling 1.1 acres were initially planted in May 1991, with prairie forb root-stock, and seeded with prairie grasses. The Illinois Department of Conservation donated 5,800 prairie plants in 1991 composed of 16 different flowering species. In 1992 an additional 2,600 rootstocks were planted on Earth Day, April 25. The three demonstration areas are: 1) the Trail Prairie which is approximately .1 acre and is located along the Chautauqua Trail and is also an interpretive stop; 2) the Headquarters Prairie is also approximately .1 acre and is located adjacent to the Refuge headquarters, between the parking lot and service road; and 3) the Pole Barn Prairie, which is approximately .9 acre and is located just east of the pole barn. A prairie restoration brochure was designed by ROS Freske and features pictures and interesting facts about the historical Illinois prairies, and the Refuge prairie restoration effort.

10. Pest Control

Purple loosestrife was identified on July 1, growing on the Refuge. A single plant was removed from the west levee of Lake Chautauqua.



Spring rains brought a resurgence of the prairie plants planted by volunteers at the Headquarters Prairie in 1991.
4/92 RE

By August visitors had enjoyed a succession of beautiful prairie flowers...often posing in the middle of the prairie to have their pictures taken.
8/92 RE

Since 1988, the exotic plant garlic mustard has been spreading through the upland deciduous forests both within our boundary and throughout Central Illinois. It is a shade tolerant plant and leafs out early in very dense stands, preventing sunlight from reaching native species under three feet in height. Even dominant plants like columbine and Dutchman's breeches are unable to successfully compete with garlic mustard. Garlic mustard is native to Europe and northern Asia. It is currently well established from Ontario and Quebec to southern New York and Virginia.

Current literature suggests there are no practical means to control garlic mustard, though prescribed burning has been reported to work in some areas. Plans are to amend the Fire Management Plan to include prescribed burning as a control measure.

Zebra mussels were first documented in the La Grange Pool of the Illinois River during the spring of 1992. During later investigations populations were well established. State fisheries biologists anticipate that the summer of 1993 will be a boon year for this exotic organism.

12. Wilderness and Special Areas

The Roundtree Research Natu rea, established in 1973, is a 26-acre unit consisting of a mature eastern deciduous forest type dominated by black oak-mockernut hickory. Separated from the Refuge proper by a county road, this area is a relatively forgotten portion of Chautauqua Refuge.

The 95-acre Melz Slough Public Use Natural Area was established in 1974. It is a forested riverbottom area of virgin timber consisting primarily of silver maple, demonstrating a climax succession that was once common to the Illinois River floodplain. It is also a traditional wintering ground for the Federally endangered northern bald eagle. This area serves as an important wood duck nesting site on the Refuge.

Two archeological sites were recorded with the State of Illinois in 1980. An aboriginal structure and associated pit were discovered in the vicinity of the observation tower at the headquarters. The second site is located 250 yards southwest of the observation tower. A grooved stone axe was found on this site.

14. Farmers Home Association Conservation Easements - Management

Fish and Wildlife Management District

In 1989, the Chautauqua Refuge Fish and Wildlife Management District (FWMD) was originated for administration of Farmers Home Administration (FmHA) lands and included 23 counties in Central Illinois. In 1991, the FWMD boundary was increased to include 32 counties. The Refuge's responsibility within the 32 county FMWD is to screen FmHA properties for significant wildlife resources and propose conservation easements on desirable habitat. If and when these easement proposals are accepted by both FmHA and the Service, the tracts will be managed as part of the National Wildlife Refuge System. We presently manage one FmHA Conservation Easement located adjacent the Cameron-Billsbach Unit, in Marshall County, Illinois.

FmHA Easement-Villager Brothers

In March 1990, two tracts of land totaling 37.71 acres and owned by the Villiger Brothers were included under a FmHA Conservation Easement due to debt restructuring. The tracts measure 17.7 and 18.01 acres. The 17.7 acre tract is bounded on three sides by the Billsbach Unit. In April 1990, a Level I Contaminants Survey identified two dump sites that were recommended to FmHA for cleanup. No action has been taken on these recommendations.

FmHA Inventory Land-Voorhees Tract

Litigation by the landowner against FmHA has held up approval of the proposed conservation easement. Mr. Voorhees was served an eviction notice in 1987 whereupon he filed an appeal. Six years passed and several appeals were filed by Mr. Voorhees. In 1992, FmHA was nearing an agreement with Mr. Voorhees where he would maintain title to the land.

15. Private Lands

Private Lands Program

The Refuge initially served as the local Farm Bill Coordinator for the five core counties of Cass, Marshall, Mason, Morgan, and Scott in 1987. In 1991 the title was changed to Private Lands Coordinator and an additional six counties - Menard, Tazewell, Peoria, Putnam, Woodford, and Fulton - were added.

Aside from floodplain wetlands, few natural wetlands existed historically in the eleven county area. Farmers in the

floodplain have not expressed much interest in restoring wetlands within their leveed and drained agricultural areas, thus there has been little opportunity for wetland restoration projects. However, the word spread about the Private Lands Program and information was distributed to the 32 counties within the Fish and Wildlife Management District. Since we are centrally located within the 32 counties it was easier for Refuge staff to make on-site evaluations of potential wetland restoration projects.

Refuge staff conducted a variety of activities to promote wetlands restorations, the "Partners for Wildlife" program, and technical advice to private landowners. The program was discussed at the Ducks Unlimited annual meeting and information was distributed in Conservation World at the Illinois State Fair. Two radio interviews and one television broadcast were also completed. Dozens of news releases and several public meetings were used to spread the word.

Wetland Restorations

The Illinois River Refuge's first ever wetland restoration project on private land was completed on the Paul Heinhorst property on August 17. A dry dam with stoplog structure was constructed across a drainage ditch in a corn field in Mason County. Approximately five acres of water can be impounded. Total cost of the project was $1,378. The Refuge paid 100 percent of the cost for this initial private lands wetland restoration so that we could have a wetland restoration example to showcase to other interested farmers.

The field where wetland restoration work was completed will continue to be farmed producing an average 200 bushel of corn per acre. Following harvest, the stop-log structure was closed to allow flooding throughout the winter months. Natural vegetation is left throughout the drainage area. After only one week of flooding one hundred ducks were using this area. Local farmers have been very hesitant to remove corn fields from production in order to restore wetlands. This project demonstrated an opportunity for farmers to provide wetland habitat during months when their field was not in use for agricultural purposes.

Two "Partners for Wildlife" Challenge Grant projects were accepted by the Regional Office for a total of $6,000. The projects included two wetland restoration projects: 1) Koeberlein Tract, Champaign County, 20 acres with 7 basins, total project cost was $35,000 with $4,990 Challenge Grant monies; and 2) Riggins Tract, Douglas County, 3 acres in one basin, total project cost was $1,254 with $572 Challenge Grant monies.

The Paul Heinhorst farm - BEFORE (water).
8/92 EB

The Paul Heinhorst farm - AFTER.
8/92 EB

Farm Bill Activities

Only one Minimal Effects Determination was made in 1992. The proposed project on the Alan Brizgis Farm, Putnam County, Illinois, included the placement of subsurface tile down the center of a meandered stream corridor and then leveling of the channel with a dozer to create a grass waterway. The stated purpose of the project is to eliminate some of the bends in the stream meander which are threatening to erode into adjacent fields. The project was determined not to be a minimal effect. A plan will be designed with SCS and the landowner to correct site specific erosion that is occurring along the stream channel.

Wetland Reserve Program

ROS Britton was on temporary assignment from July 13-22 in Iowa to evaluate wetland restoration potential and to help in the writing of Plans of Operation for the Wetland Reserve Program. Britton was assigned to four counties in south-central Iowa that included Appanoose, Wayne, Lucas, and Monroe. These four counties had 82 interested applicants that included 1,002 acres. A total of 751 entries were filed involving 45,040 acres throughout the entire State of Iowa.

G. WILDLIFE

1. Wildlife Diversity

Chautauqua Refuge is a vital link in the chain of resting, feeding, and wintering areas for migratory birds along the Mississippi Flyway. Waterfowl are most visible with 18 species commonly occurring. More than 250 other species of birds use the Refuge. Other marsh, water, and shorebirds commonly are found during the spring and fall months. Bald eagles are common winter inhabitants. Twenty-eight species of mammals occur on the Refuge. Several species of reptiles and amphibians are commonly observed on the Refuge.

2. Endangered Species and/or Threatened Species

The northern bald eagle is a winter resident at the Refuge. Eagle populations fluctuate with waterfowl populations and ice conditions. Bald eagle populations reached an all-time record high in 1992. A peak of 80 eagles (44 adult and 36 immature) was observed on January 13. The previous peak of 70 eagles occurred in December 1991. Total use days in 1992 were 3,151 (Table CTQ-9), slightly less than the previous year. During the month of January, it was common to see 25 - 30 bald eagles

perched in trees in the Melz Slough area. The eagles were feeding primarily on shad that were killed by the continual freezing and thawing of Lake Chautauqua. Bald eagle populations declined in February to a high of 41, but were still quite visible and attracted many visitors.

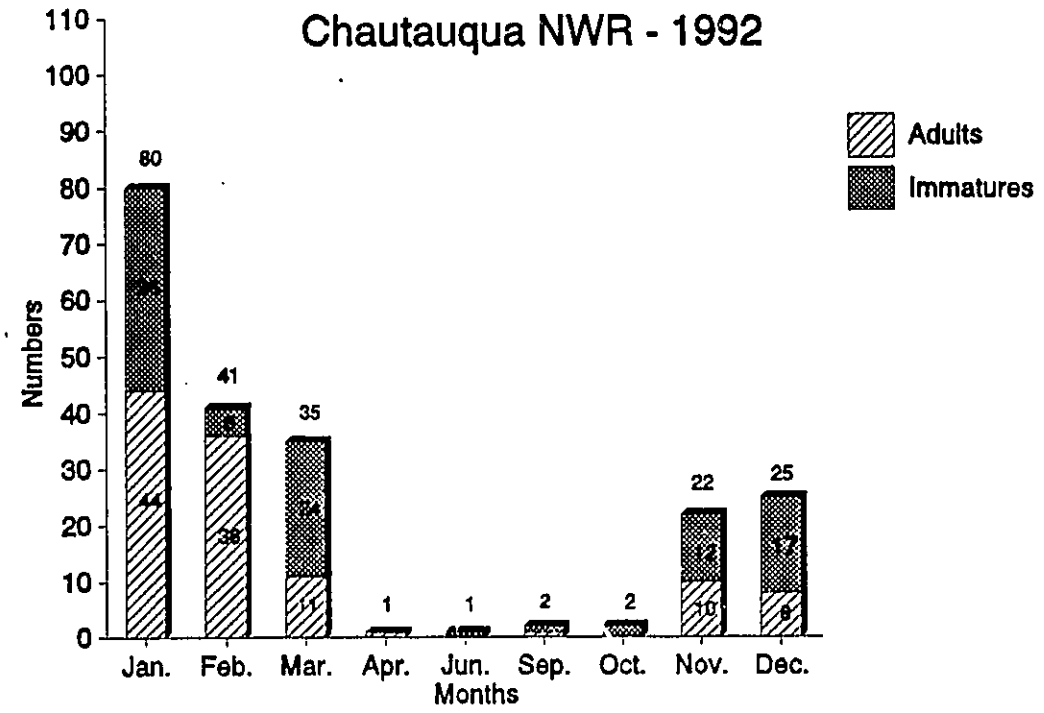
The Midwinter Bald Eagle Count was conducted on March 31, and included 35 (24 adult and 11 immature) birds observed on Lake Chautauqua.

An adult bald eagle was observed on Lake Chautauqua on April 27. This was a very late date to observe an adult eagle. One new bald eagle nest was active on the Sanganois Wildlife Management Area located 20 miles south of Lake Chautauqua. An immature bald eagle was observed on Lake Chautauqua in June. An adult and an immature bald eagle were observed on September 6. We anticipate that bald eagles will nest on Chautauqua Refuge within the next few years.

Chautauqua Refuge has supported 18 of the 27 bird species listed in Illinois as endangered in the State. Primary species that use the Refuge include: double-crested cormorant, great egret, and black-crowned night heron.

Two of the bald eagle population wintering at Chautauqua in a tree on the bluff overlooking Lake Chautauqua.

Northern Bald Eagle Peak Population



Northern Bald Eagle Peak Population

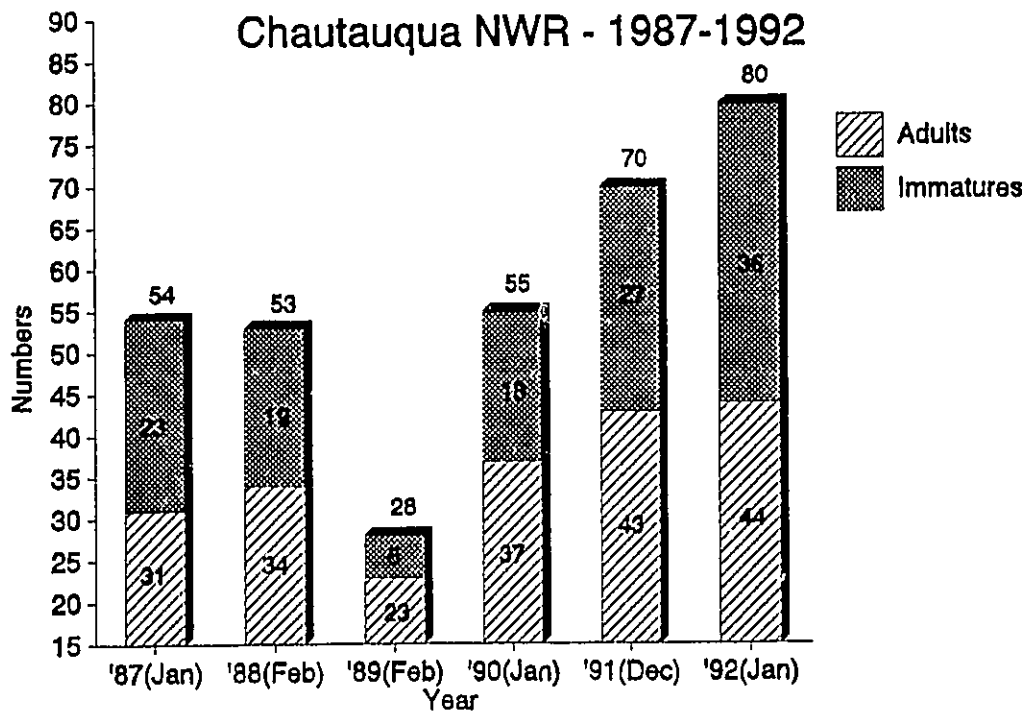
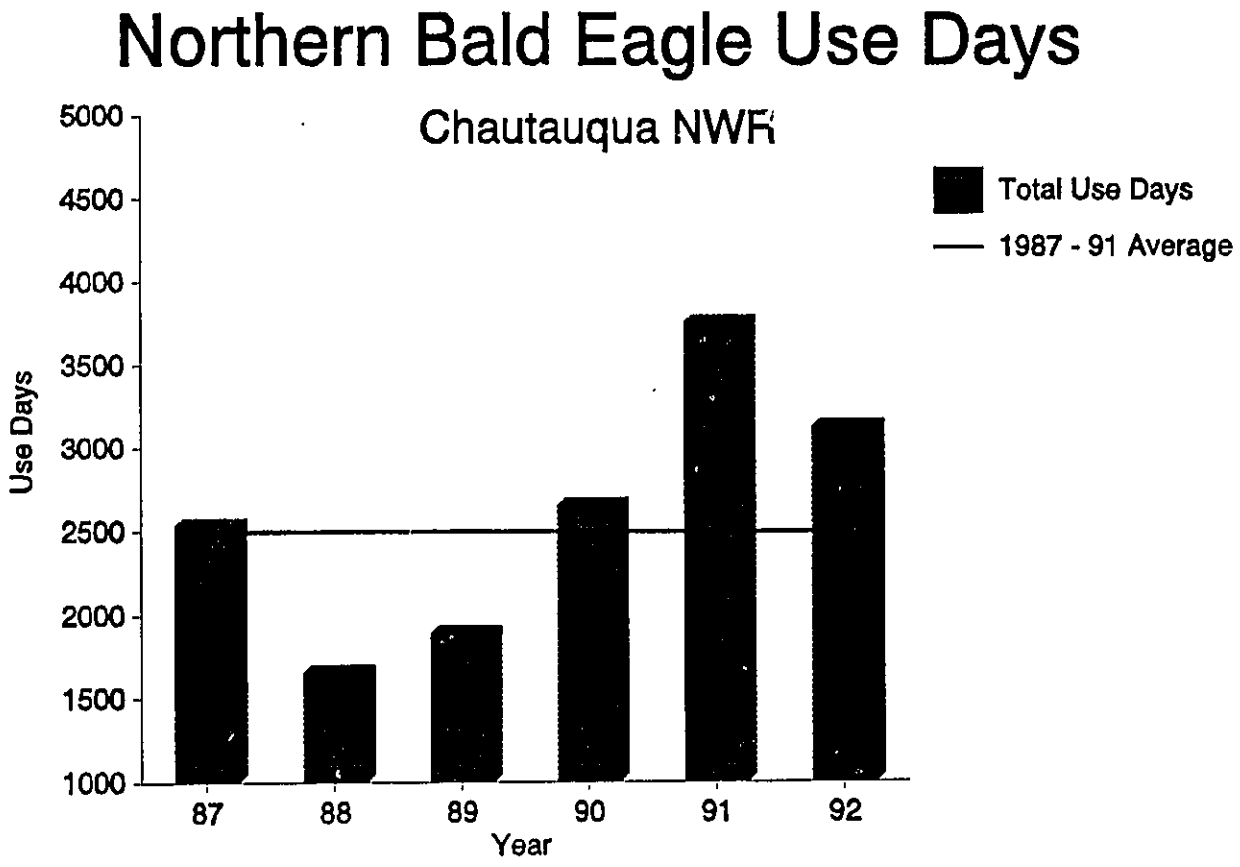


Table CTQ-9, Northern Bald Eagle Use Days - Chautauqua Refuge.

	1992	1991	1990	1989	1988	1987
January-March	2,080	1,428	1,781	677	933	1,350
April-September	28	0	0	10	0	7
October-December	1,043	2,325	868	1,201	720	1,180
Total	**3,151**	**3,753**	**2,647**	**1,888**	**1,653**	**2,530**



3. Waterfowl

Mallards account for 60 to 80 percent of the use. The objective level of 9 million use days has not been met since 1978. There are several reasons for this - loss of habitat and corresponding low continental duck populations. More specifically, this Refuge has lost water management capability due to a substandard levee system. Siltation and pollutants have further exacerbated the condition of Lake Chautauqua.

Because of the low levee height the Refuge functions as a flood control reservoir which decreases water management opportunities. Lack of maintenance funds has allowed these low dikes to fall into disrepair. Lack of communication between the contractor and the Division of Engineering resulted in a spillway being installed in 1984 that is at least two feet too high to drain the Lake for moist soil plant production. When combined, these factors add up to continued decreases in duck use and a declining percentage of use by waterfowl and other wetland dependent fish and wildlife species.

The Illinois Natural History Survey (INHS) conducts aerial surveys during the spring and fall waterfowl migrations along the Illinois River (River). Refuge staff conduct weekly ground surveys for waterfowl and eagles. Waterfowl use data is considered to be minimal use since many areas along the River are not regularly surveyed.

Duck use days for 1992 totaled 3,162,339, which is 26.2 percent above the 1983-1992 average (Table CTQ-10). Duck populations in 1992 showed the highest total use since 1985. The majority of this use occurred during the October - December period when dewatering of the Lake was being conducted as a part of the EMP project. Water levels were at a record low, 3 - 4 feet below normal. Ducks were concentrating feeding efforts on the exposed mudflats. Studies in this area have shown that the Lake sediment contains more than 2,000 seeds per square yard. These increased duck numbers that apparently resulted from the exposed mudflats provided Refuge staff with a new outlook and management option in the future if the moist soil crop fails to produce.

Canada goose use during 1992 was at an all-time record low. Total goose use days for the year was 73,325. The major reason for the low goose use was attributed to the extremely mild 1991-1992 winter. Very few migrant geese used the Refuge in 1992. The most significant part of the Refuge's goose use was by resident Canada geese that nest in the strip-mine pits in Fulton and Knox Counties, and the cooling ponds of the Duck Creek and Powerton power plants located only a few air miles

north and west. This resident goose population numbers 5,000 - 6,000. The extensive agricultural areas combined with the isolation of the strip-mined areas provide ideal habitat for the geese.

Duck populations during the spring migration (Table CTQ-11) showed record numbers of divers. Peak spring diving duck numbers included: canvasback 4,300; lesser scaup 6,800; ringneck 2,000; and common merganser 4,955.

Duck populations during the fall migration (Table CTQ-12) showed a much higher number of dabblers. Peak fall dabbling duck numbers included: mallard 58,000; gadwall 5,000; green-wing teal 7,500; pintail 4,000; and blue wing teal 3,900.

Chautauqua Refuge is slowly gaining back a greater percentage of the total waterfowl use within the lower Illinois River Valley stretching 100 miles from Pekin Lake south to Smith Lake. In 1992 Chautauqua accounted for 18.2 percent of the waterfowl use in the lower reaches of the Illinois River (Table CTQ-13). This was the highest total percentage of use within this area since 1984.

Table CTQ-10, Waterfowl Use Days - Chautauqua Refuge, 1983-1992.

Ducks

Year	January-March	April-June	July-September	October-December	Total	% Variance from 10 year average
1983	983,163	356,995	216,617	2,451,902	4,008,677	+ 42.3
1984	201,325	228,800	262,793	3,399,290	4,092,208	+ 43.5
1985	204,946	78,742	209,852	3,008,800	3,502,340	+ 34.0
1986	270,270	27,755	49,959	946,491	1,294,475	- 44.0
1987	103,181	21,370	56,478	1,779,960	1,960,989	- 15.3
1988	314,991	27,690	74,945	824,115	1,241,741	- 46.3
1989	48,914	14,117	85,800	1,003,975	1,152,806	- 50.2
1990	782,245	125,940	1,200	355,664	1,265,049	- 45.3
1991	398,939	16,470	44,580	1,210,250	1,670,239	- 27.8
1992	570,440	27,045	164,504	2,400,350	3,162,339	+ 26.2
10 year average	**387,841**	**92,492**	**116,673**	**1,738,080**	**2,335,086**	

Geese

1983	176,290	5,570	12,787	102,870	297,517	+ 12.3
1984	63,860	3,910	15,475	197,740	280,985	+ 7.2
1985	38,615	2,425	7,110	636,705	684,855	+ 61.5
1986	122,941	1,456	2,457	40,222	167,076	- 36.0
1987	16,788	700	2,430	131,525	151,443	- 42.0
1988	38,065	1,690	2,620	131,175	173,550	- 33.5
1989	61,330	6,248	16,185	143,720	227,483	- 12.9
1990	463,160	4,890	0	11,475	479,525	+ 45.6
1991	51,863	3,240	6,390	25,743	87,236	- 66.6
1992	5,490	362	11,273	56,200	73,325	- 72.0
10 year average	**103,840**	**3,049**	**7,673**	**147,738**	**262,300**	

Table CTQ-11, Peak Spring Waterfowl Species Data - Chautauqua Refuge, 1983-1992.

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MALLARD	7750	12280	2030	5675	2075	7000	2359	4400	27800	**10400**
BLACK DUCK	180	220	45	310	400	330	120	80	350	**305**
GADWALL	900	175	60	185	40	50	45	325	75	**450**
PINTAIL	975	775	175	925	450	200	150	450	940	**320**
G-W TEAL	850	125	275	75	75	50	85	350	30	**1100**
B-W TEAL	1700	980	700	75	450	125	150	525	200	**400**
A. WIGEON	3200	1450	400	1000	200	100	150	600	475	**850**
N. SHOVELER	1200	1350	400	10	600	250	200	600	100	**465**
REDHEAD	700	150	175	235	250	350	150	125	0	**25**
RING-NECK	1480	1960	640	1150	500	250	175	1600	200	**2050**
CANVASBACK	900	4025	900	555	250	2000	300	1200	920	**4300**
LESSER SCAUP	3425	7400	2400	1465	500	2700	350	2800	1150	**6800**
BUFFLEHEAD	265	100	115	25	200	20	30	300	0	**2**
RUDDY DUCK	250	300	585	1370	80	350	75	250	0	**865**
C. MERGANSER	310	510	325	1050	500	800	500	1400	1950	**4955**
RB MERGANSER	0	50	10	275	10	50	10	0	0	**15**
H. MERGANSER	90	140	70	75	75	15	20	175	0	**13**
C. GOLDENEYE	1040	990	615	875	1100	250	300	5600	5045	**4120**
CANADA GOOSE	2130	3680	1250	8000	1600	2500	2900	10000	6350	**974**
SNOW GOOSE	350	180	135	25	5	100	15	800	150	**0**
TUNDRA SWAN	0	0	0	2	0	0	2	0	0	**0**

Table CTQ-12, Peak Fall Species Data - Chautauqua Refuge, 1983-1992.

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
MALLARD	68425	71830	45450	35000	38000	19000	49000	10500	22875	**58000**
BLACK DUCK	915	10	215	500	400	300	800	120	550	**840**
GADWALL	640	1580	1435	1050	1500	125	200	75	3000	**5000**
PINTAIL	2675	3750	13850	6500	6900	2800	1000	500	3180	**4000**
G-W TEAL	1950	3575	6700	1250	1900	800	1000	325	1350	**7500**
B-W TEAL	3190	4150	12525	1235	300	1400	1400	50	2300	**3900**
A. WIGEON	2200	6400	19900	8000	7200	1700	1050	300	3000	**3700**
N. SHOVELER	180	290	1350	350	800	60	550	0	0	**2000**
REDHEAD	150	100	300	75	30	80	8000	0	20	**25**
RINGNECK	500	1500	1180	3600	900	350	9000	300	190	**2300**
CANVASBACK	350	600	650	350	600	450	2000	450	425	**125**
LESSER SCAUP	930	2865	3130	3500	2300	2200	7000	2550	225	**2000**
BUFFLEHEAD	100	250	1000	600	400	450	1000	50	25	**150**
RUDDY DUCK	250	1350	1100	1300	1000	400	1000	10	0	**40**
C. MERGANSER	75	85	465	450	250	1400	325	0	50	**3000**
RB MERGANSER	30	40	80	60	15	20	100	0	0	**0**
H. MERGANSER	30	50	85	125	140	20	100	0	0	**20**
C. GOLDENEYE	225	375	1700	1300	675	700	925	30	870	**4300**
CANADA GOOSE	820	2610	10895	1800	3100	2200	3800	300	570	**1700**
SNOW GOOSE	1040	4500	6125	2000	2500	2000	550	0	0	**500**

Table CTQ-13, DUCK USE DAYS - Chautauqua Refuge.

Thousands (000)

Year	Chautauqua Refuge	Illinois Valley	% of Illinois Valley Use at Chautauqua
1983	4,009	15,419	26.0
1984	4,092*	20,834	19.6*
1985	3,502	35,996	9.7
1986	1,294	25,561	5.1
1987	1,961	26,413	7.4
1988	1,242	18,869	6.6
1989	1,153	22,452	5.1
1990	1,265	27,939	4.5
1991	1,670	14,006	11.9
1992	**3,162**	**17,363**	**18.2**
10 Year Ave. 1983-92	2,335	22,485	10.4

*The year the west spillway was put in, complete dewatering was necessary to facilitate construction. The west spillway is now at least two feet too high to drain the Lake for moist soil plant production.

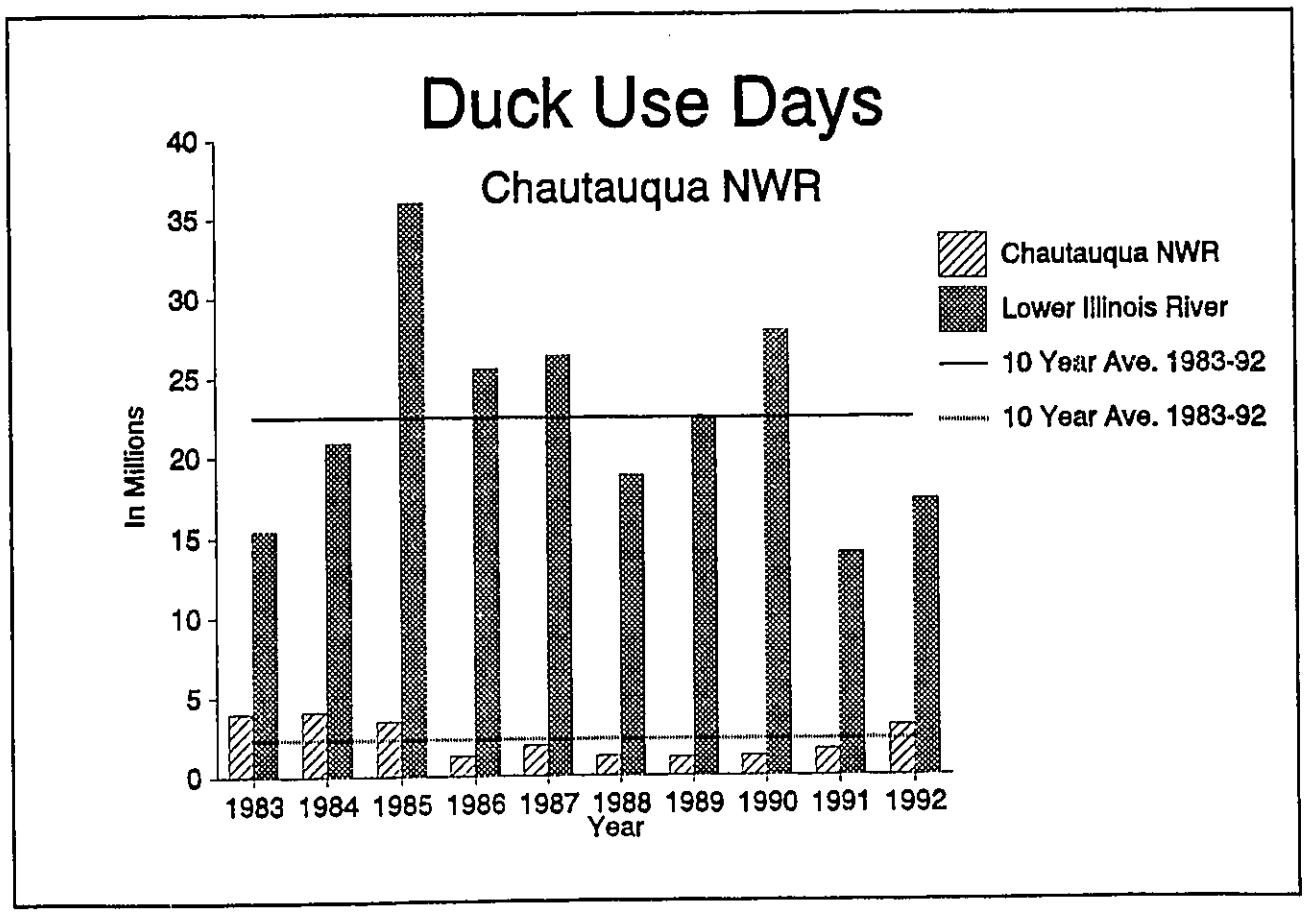


Figure CTQ-9

WOOD DUCK BOX PROGRAM

Most of the wood duck boxes available on Chautauqua Refuge were not checked due to time constraints of the staff. Of the 110 boxes available, a total of 14 were checked.

Table CTQ-14, Wood Duck Production - Chautauqua Refuge.

Ten Year Summary of Wood Duck Box Use

Year	# of Boxes	# Boxes Used by WD	Successful Nests	Production of Young	Average Hatch Siz
1983	124	27 (22%)	23 (85%)	224	9.7
1984	117	18 (15%)	14 (78%)	128	9.1
1985	118	38 (32%)	22 (58%)	224	10.2
1986	118	22 (19%)	15 (68%)	111	7.4
1987	117	47 (40%)	31 (66%)	169	5.5
1988	117	47 (40%)	27 (57%)	200	7.4
1989	120	33 (28%)	10 (30%)	49	4.9
1990	115	25 (22%)	7 (28%)	67	9.6
1991	*	*	*	*	*
1992	**14**	**2 (14%)**	**2 (100%)**	**10**	**5.0**
Avg.	107	29 (27%)	17 (59%)	131	7.7

* boxes not checked in 1991

4. Marsh and Water Birds

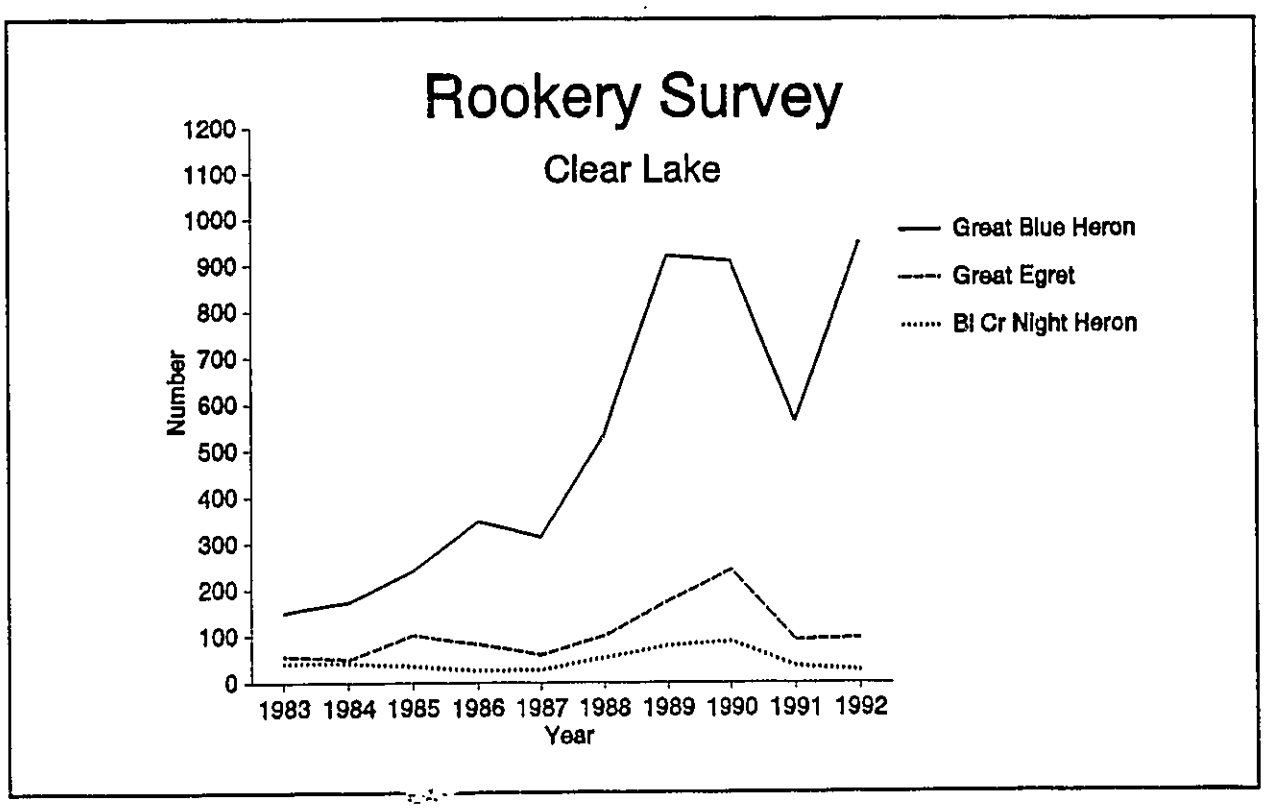
The most common water birds include the great blue heron, great egret, black-crowned night heron, and double-crested cormorant. Double-crested cormorants used the Refuge heavily again this year. This is a state-endangered species, and appears to be recovering at least in this local area. Great blue herons peaked at 847 at the beginning of July. Great egrets peaked at 167 during the middle of September.

Refuge staff and YCC assisted Dr. Richard Bjorklund (Bradley University, Peoria, Illinois) with the annual Clear Lake heron rookery survey. Dr. Bjorklund has been monitoring the colony for 31 years. Clear Lake is located immediately north of Lake Chautauqua. A total of 1,073 active nests in 433 trees were observed that included 950 great blue heron (an all-time high), 96 great egret and 27 black-crowned night heron nests. In 1991, there were only 692 nests (Table CTQ-15). With the exception of 1991, the colony has annually increased in the number of nests during the last ten years.

Table CTQ-15, Rookery Survey - Clear Lake Rookery.

Year	Great Blue Heron	Great Egret	Black-crowned Night Heron	Total Nests
1983	152	58	42	252
1984	174	50	43	267
1985	241	102	37	380
1986	348	83	27	458
1987	315	61	28	404
1988	533	101	54	688
1989	921	176	79	1,176
1990	911	244	90	1,245
1991	564	92	36	692
1992	**950**	**96**	**27**	**1,073**

Figure CTQ-10, Heron Rookery - Clear Lake.



5. Shorebirds, Gulls, Terns & Allied Species

Ring-billed and herring gulls account for the majority of use in this category, as they are present year round. Other species include pectoral sandpipers, yellowlegs, common snipe, and a variety of other shorebirds.

6. Raptors

Northern harriers, red-tailed hawks, screech owls, barred owls, and turkey vultures are all common on the Refuge. American kestrels are sighted frequently near the Refuge boundary. Screech owls use wood duck boxes each year and are commonly heard calling.

7. Other Migratory Birds

The annual woodcock singing ground survey was conducted on April 13 in Mason County, near Bath, Illinois. The designated route was in habitat that is not ideal for woodcock. No birds were heard. We did not choose the site.

The Illinois Spring Bird Count was conducted by the Peoria Chapter of the Audubon Society on May 9. A total of 132 species were documented in Mason County.

The annual Mason County mourning dove survey was conducted on May 20. Fourteen doves were heard while 15 were seen.

The annual mourning dove survey for Fulton County took place May 27. Seventeen doves were heard while 12 were seen.

White pelicans were first observed on Lake Chautauqua May 19 with numbers reaching 28 on May 29. The flock of white pelicans continued using Lake Chautauqua through all of June, with a high of 26 pelicans observed on the 13th. Fifteen white pelicans were observed intermittently during July, and 27 pelicans were using Lake Chautauqua during the middle of September.

Mourning doves use the fringes of the Refuge along roadside ditches in the foxtail along the south dike and sometimes along the River ridge. Another migrant, though seldom seen, is the American woodcock.

The 21st Annual Audubon Christmas Bird Count took place on December 26. The census area is a circle 15 miles in diameter with Lake Chautauqua at its center. The 1992 count documented 84 species and 17,429 individuals (Table CTQ-16). Unusual sightings included five mute swans and two greater scaup. Bald eagles totaled 111 comprised of 63 adults, 46 immature, and two unknown.

Table CTQ-16, Christmas Bird Count - Chautauqua Refuge.

Year	Total Species	Observations	Waterfowl (%)
1974	74	78,979	73,817 (93)
1975	81	190,053	176,913 (93)
1976	66	14,983	7,890 (53)
1977	66	8,524	3,000 (35)
1978	70	14,727	10,966 (74)
1979	65	15,304	7,283 (48)
1980	82	15,078	7,544 (50)
1981	73	11,966	7,378 (62)
1982	82	12,412	4,564 (37)
1983	64	8,926	3,848 (43)
1984	78	16,971	9,925 (58)
1985	75	11,678	4,314 (37)
1986	85	17,757	9,143 (52)
1987	84	21,757	12,993 (60)
1988	78	39,049	30,703 (79)
1989	71	17,475	6,543 (37)
1990	79	15,623	9,973 (64)
1991	80	18,724	13,266 (66)
1992	84	17,429	10,302 (59)

8. Game Mammals

Game mammals on Chautauqua include the white-tailed deer, gray and fox (predominant) squirrels, and eastern cottontail. Furbearers include mink, muskrat, raccoon, coyote, badger, and red fox.

No hunting or trapping of mammals is permitted on the Refuge due to the very narrow strip of Refuge owned land located around Lake Chautauqua.

10. Other Resident Wildlife

Ringnecked pheasants and bobwhite quail use the limited upland acreage around the Refuge. Farming practices adjacent to our boundary have an impact on the number of birds using the Refuge. Over the last 15 years, shelterbelts have been

removed to facilitate center pivot irrigation systems and fall plowing has become common practice.

Beavers are common and cause some problems.

11. Fisheries Resource

Lake Chautauqua supports up to 54 species of fish. Carp, buffalo, and shad are by far the most abundant. Sport fishing for crappie, bluegill, catfish, bullheads, and yellow, white, and black bass is a very popular activity. Annual flooding from the Illinois River precludes fishery management potential.

Currently, the elevation of the sill at the west spillway does not allow for complete dewatering of the Lake. This traps many fish where summer temperatures can quickly reduce the oxygen content resulting in a major fish kill. In order to help prevent a fish kill, a 36 inch corrugated metal pipe (CMP) with flapgate was installed in the south levee in June 1991. This pipe allowed for improved oxygen with a constant streamflow from the 3 foot by 3 foot box culvert on the Quiver Creek which exits out the 36 inch CMP. A significant summer fish kill did not occur even though water levels were at a record low. Cool temperatures and intermittent rains may have been responsible for the lack of a significant summer kill.

Commercial fishing was reactivated on Lake Chautauqua in 1989 after being discontinued in 1973. Commercial fishing is allowed by Special Use Permit, in compliance with the Fishery Management Plan. A total of 49,678 pounds of rough fish were reported harvested by 12 commercial fishermen (Section H.9).

14. Scientific Collections

In conjunction with the Environmental Management Program project the Long Term Resource Monitoring Station continued to collect baseline data on water quality, vegetation communities and fisheries communities (Section D.5).

16. Marking and Banding

An airboat on loan from Horicon Refuge since 1991 was outfitted with the necessary equipment to "night-light" waterfowl for banding operations. Nightlighting has proven to be an effective method of banding wood ducks when emergent vegetation is present. Nightlighting has not been an effective method to capture these birds on Chautauqua Refuge due to the absence of emergent vegetation. Refuge staff

conducted nightlighting of wood ducks on March 12, on Anderson Lake Wildlife Management Area, and on July 28, and August 27, on Crane Lake of the Sanganois Wildlife Management Area (both State areas). Extremely high water in July and August hampered trapping efforts. A total of 72 birds were caught. Along with these birds, 17 wood ducks were cage trapped and banded on July 24.

Studies have shown that nest initiation at Chautauqua Refuge and Quiver Creek begins around the last week in March and by the third week in May, 80 percent of wood ducks have begun nesting.

Table CTQ-17, Wood Duck Banding Quota - Chautauqua Refuge.

		Results			
Age/Sex	**Quota**	**1992**	**1991**	**1990**	**1989**	**1988**
AHYM	100	13	17	22	58	43
AHYF	100	13	38	37	88	52
HYM	50	26	71	43	52	91
HYF	50	37	30	43	49	117
TOTALS	**300**	**89**	**156**	**145**	**247**	**303**

H. PUBLIC USE

1. General

Refuge brochures are available from a leaflet dispenser outside the headquarters during off-duty hours. The information center also has posters and displays pertaining to current Refuge and Service programs and objectives.

Since March 1991, Refuge staff have written a weekly "Chautauqua Chatter" newsletter that is published in four local papers - the Mason County Democrat, Fulton County Democrat, Astoria Argus, and the Manito Review. This column provides us an opportunity to identify activities, wildlife and habitat management programs (local and national), as well as discuss a wide variety of resource issues or items of interest.

2. Outdoor Classrooms - Students

Twelve students from Bradley University's Biology Department were at Chautauqua Refuge for an on-site visit May 26.

The Illinois Natural History Survey (INHS) completed the "WETLAND WONDERS", instructional materials for the study of midwestern wetlands. This project was funded under the Challenge Grant program during FY 91 - the Service provided $10,000, and INHS provided $10,000. A total of 1,500 copies of the publication were made. The materials are intended for middle school classrooms, but can be readily adapted for younger or older students. Part two, "Twelve Activities for Young People" is the heart of the publication. There are 20 color slides that accompany the publication with commentary provided. One hundred copies were provided to Southern Illinois University at Edwardsville, which will distribute them through Illinois schools.

The demand for this wetland educational packet has been very high and they have been leaving our station at a brisk pace. This is as it should be. It was very well done and the public obviously appreciates the project.

4. Interpretive Foot Trails

The Chautauqua Nature Trail (Trail), a new wheelchair accessible interpretive trail was completed after one and one-half years of volunteer work. Refuge personnel, YCC, Scouts, and volunteers completed about 50 percent of the 1/2 mile long Trail during 1991, and the other half was completed in September, 1992. The design is inexpensive, simple, and very easy to modify for site specific conditions and requires little maintenance. The skills required to construct this type of trail allow excellent opportunities for all age groups (volunteers, Scouts, and youth programs) to participate. The Trail can be constructed (material) for about $3.00/linear foot. The labor costs will vary and are dependent upon the extent of participation by volunteers and the type of paid labor.

In order to make this type of trail wheelchair accessible it was 57 inches wide and surfaced with about 2 inches of crushed stone and approximately 1 inch of crushed limestone. The Trail surface is held in place by 1 inch by 6 inch pressure treated boards which are anchored by 4 inch by 4 inch by 18 inch pressure treated posts. Upon completion, 8 numbered interpretive stops with benches were spaced out along the Trail. Stop #4 has a set of wheelchair accessible binoculars mounted on a pedestal. A brochure was designed by Refuge staff and was available for visitors on the Trail dedication day. Three of the stops overlook Lake Chautauqua.

The Chautauqua Nature Trail in its beginning.
4/91 BF

Volunteers loaded and hauled rock on the Trail. Manager French occasionally manned a shovel.
4/92 RE

Visitors eagerly explored an area once accessible only by wading through briars and brambles.

10/17/92 CB

A wooden bridge over a ravine leads visitors either down to the Lake overlook or back up over the bluff to headquarters.

10/17/92 JR

Benches placed throughout the [illegible] quiet place to
[illegible]
10/12/79.

Congressman Robert Michel, House Republican Leader, was the honored guest for a Trail dedication held on October 17, to officially open the wheelchair accessible trail. Regional Director Sam Marler, Assistant Regional Director (ARD) for Refuges and Wildlife Susan Haseltine, and ARD for Human Resources Barbara Milne also attended the dedication.

The highlight of the day was the presentation of an outdoor wheelchair to 12 year old Danny France from Astoria Schools who had worked on the Trail. The new wheelchair was donated by Quickie Designs, Fresno, California. Few people knew of the scheduled presentation but the crowd came to its feet and cheered through tears at Danny being moved from his old wheelchair to the new one. After the dedication ceremony, Danny quickly put the new chair through its paces on the Trail he had helped build.

ARW Haseltine spoke at the Trail dedication ceremony in October as RD Marler and Congressman Michel looked on.
10/17/92 JR

Representatives from the Volunteer of the Year groups for 1991 and 1992 joined with Congressman Michel and PM French in the ribbon-cutting ceremony.

11/17/92 JR

Danny France in his new outdoor wheelchair on the Trail he helped build.

10/17/92 JR

6. Interpretive Exhibits/Demonstrations

Illinois State Fair

Personnel from the Mark Twain Refuges (Annada, Brussels, and Wappelo) joined with personnel from the Illinois River Refuges and staffed exhibits in Conservation World at the Illinois State Fair. This is the secord year that Illinois River Refuges has sponsored an exhibit for the State Fair. Over 12,000 people visited the Service's display, an increase of 35 percent over 1991. The nine day event was held in Springfield, Illinois, from August 15-23 at the Illinois State Fair grounds. The 1992 theme was "Partnerships with Conservation" focusing on "Women in Conservation." In addition, the Junior Federal Duck Stamp winners and runner-up paintings were displayed.

Havana Oktoberfest

Refuge staff participated in the annual Havana Oktoberfest activities on September 12 - 13. Two displays were set up and a variety of Service and Refuge brochures were available. Approximately 500 people visited the display during the two day event.

7. Other Interpretive Programs

On May 5, Midwest Central High School held its annual Alternative Day. Refuge staff gave two one-hour presentations on environmental problems facing our youth and how they can become involved. A total of 46 students attended.

Take Pride buttons, bumper stickers, and brochures were available to the public during the Illinois State Fair exhibition.

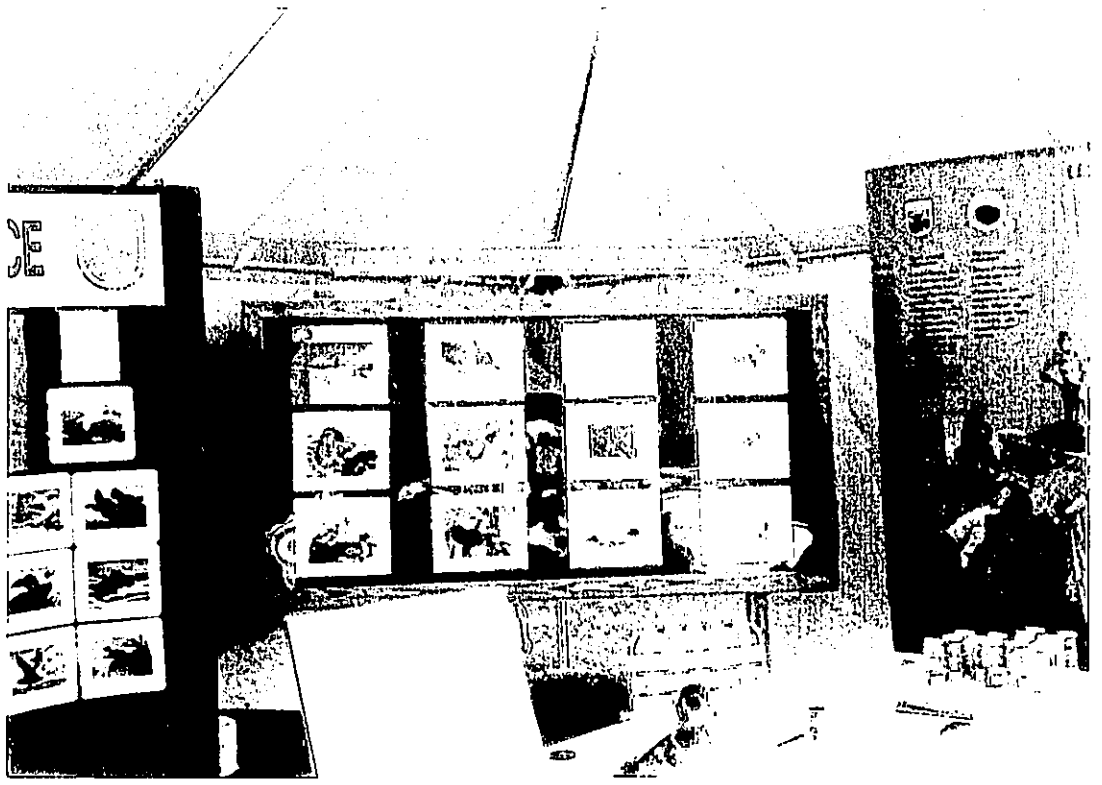
Take Pride In America buttons, bumpers stickers, trash bags, and lapel stickers were displayed and distributed at the Chautauqua Nature Trail dedication held on October 17, and at the Havana Oktoberfest on September 12 - 13.

8. Hunting

Waterfowl hunting is the only hunting allowed on Chautauqua Refuge. The 745 acre Liverpool Lake Public Hunting Area is located on the west side of the Refuge between the west levee and the Illinois River. Regulations require blinds to be made from existing dead materials and the area is available on a first-come first-serve basis.

Visitors seemed to enjoy the exhibit at the Illinois State Fair in August. Use increased over 35% from 1991 - our first year.

8/92 RE



First place winning entries in the Federal Junior Duck Stamp contest were displayed at our Fair exhibit. The attractive presentation led to plans for the Refuge to host the 1993 Federal Junior Duck Stamp contest which will be held in Havana, Illinois.

8/92 RE

An early waterfowl hunting teal season occurred from September 5 - 13. The Liverpool Lake area was open for the early season. Water levels were optimum for access by hunters during the latter half of the period. An estimated 15 hunters spent a total of 45 hours and harvested 15 teal, mostly blue-winged. One hunter was cited for harvesting a wood duck.

Waterfowl hunting in this same area during the regular season extended from October 31 - November 29. A record number of duck hunters turned out to hunt the Refuge. On opening day, a total of 80 hunters showed up, but the harvest and success rate was poor with only 20 ducks (mostly woodies) harvested. Hunting was steady with 5 - 10 hunters per day during the weekdays, and with 20 - 25 hunters per day on weekends. Flood conditions during the latter three weeks of the season made timbered areas accessible to waterfowl and hunters. An estimated total of 468 waterfowl hunters spent 1,704 activity hours and harvested 102 ducks (average 15 activity hours/duck), and 2 Canada geese during duck season.

9. Fishing

Sport Fishing

Bank fishing was limited to designated areas until regulation changes occurred in 1988. Under the new regulations, bank fishing is allowed on the entire Refuge. There is a 25 horsepower limit on the Lake except for commercial fishing.

Recreational fishing by boat is closed annually on Lake Chautauqua from October 16, through December 15, to provide a waterfowl sanctuary.

Low water levels on Lake Chautauqua forced the cancellation of the 1992 Fishing Derby scheduled for June 7. This was the second year for the annual fishing derby. The fishing program will be greatly improved with the completion of the north pool, which will have a year round water level of 4 - 5 feet.

To make up for the cancellation of the Fishing Derby Refuge staff cooperated with the Havana Park District and participated in two fishing contests held on the Illinois River near Havana. On July 25, the Havana Park District, Illinois River Refuges, and American Sport combined to sponsor a fishing derby. More than 50 people competed for $500 in prize money in 10 categories. The turnout was so encouraging that a second event was scheduled for August 22.

Good weather and $500 in prize money brought a crowd to the Fishing Derby in Havana in July.
7/25/92 RE

A 9+ pound flathead catfish was the "Big Fish" winner in the Derby. It took the two of them haul it in! NOT!!!
7/25/92 RE

On August 22, the Havana Park District and Illinois River Refuges combined to sponsor another fishing derby on the Illinois River near Havana, Illinois. Approximately 40 people competed for $320 in prize money in 10 categories.

Commercial Fishing

A meeting was held at the Refuge headquarters building on February 26, at 7:00 PM to solicit public input about the 1992 Lake Chautauqua commercial fishing program. Seven individuals attended the meeting. One proposed change would have made any individual with a fish or wildlife violation within the last five years ineligible to participate in the program. It quickly became evident that we would not have any participants with the five year requirement. One fisherman stated "We're generally good, but we ain't that good." A one year requirement was initiated.

Commercial fishing on Lake Chautauqua began April 1. Twelve Special Use Permits were issued for $100 each. The total commercial harvest of fish in 1992 was 49,678 pounds (Table CTQ-18). Species included: buffalo 36,736 pounds; carp 11,789; catfish 1,090; drum 53.

The future of the commercial fish program is questionable. Significant improvements to our water management capabilities as a result of the EMP project may eliminate the need for the program. The new water control structure on the south levee will have a sill elevation that is two feet below lake bottom rather than the present elevation on the west spillway that is two feet above. The fish should readily move out of the Lake as the water levels recede and not become trapped as was the case in the past. The wholesale removal of fish to avoid a significant fish kill will likely not be required in the future.

Table CTQ-18, Commercial Fish Harvest (Pounds) - Chautauqua.

Year	Carp	Buffalo	Drum	Catfish	Total
1989	6,935	29,685	220	-	36,840
1990	450	2,425	205	-	3,080
1991	8,355	22,763	162	-	31,280
1992	**11,789**	**36,746**	**53**	***1,090**	**49,678**

* 1992 was the first year that catfish were allowed to be taken

11. Wildlife Observation

Spring and fall are usually the best periods to observe wildlife. This year, November and December attracted wildlife enthusiasts in record numbers to observe bald eagles on Lake Chautauqua. It was common to see 20 - 30 bald eagles from the boat ramp.

12. Other Wildlife-oriented Recreation

Though less in numbers, other consumptive uses on the Refuge are highly regarded by some. Mushroom hunting, berry picking, and nut collecting are all allowed on the Refuge. Most of the mushroom and berry consumption takes place between April and June (but good luck trying to get the locations from the successful collectors). Gathering walnuts and hickory nuts usually peaks in September or October.

14. Picnicking

Picnicking is limited to the three picnic tables located near the headquarters building.

16. Other Non-wildlife Oriented Recreation

There is a very limited amount of this type of recreation. Occasionally, joggers will run the service road; bicyclers will ride down to the River; or children will play in the water near the crossdike.

17. Law Enforcement

In 1992, a total of 32 citations were issued by Refuge and state officers on the Refuge and an additional 8 citations were written by Refuge officers off refuge (Table CTQ-18). Refuge citations included four violations (13%) related to waterfowl hunting and 28 violations (87%) related to the sport fishing program. All off-refuge citations made by Refuge officers were related to duck hunting. State wardens accounted for 75 percent of the citations written on Refuge lands. All of the state related cases were violations of sport fishing regulations and handled through state court. State Conservation officers provide the Service with a tremendous amount of assistance on all three Refuge areas. Their time is valuable to our program and very much appreciated.

During Memorial Day weekend vandals broke the windshield and rear window of a Division of Law Enforcement pickup truck that was parked on the Refuge waiting to be excessed.

Drug interdiction flights (Operation "Cash Crop") with the Air National Guard were conducted on June 30, and July 23. An August 27, flight had to be canceled due to poor weather conditions. This geographic area is well known for its local "ditch weed" as many farmers raised marijuana during the war for the production of hemp. Many highway right-of-ways were covered in marijuana. However, the flights are directed toward cultivated crops. Several cultivated plants were found on areas adjacent to the Refuge within the proposed boundary of the Emiquon Refuge in Fulton County, Illinois.

On November 30, ROS Britton accompanied SA Sommers and IDOC officers on the "take down" of a local picking house. The picking house had been under investigation during the duck season and was known to take illegally killed game. A total of 165 ducks, 28 squirrels, and 28 rabbits were seized. A similar investigation in 1990 at this same picking house resulted in over 300 ducks seized.

Table CTQ-19, 1992 Law Enforcement Violations, Chautauqua NWR.

Violation	#Individuals	Fine	Agency	Location
Invalid boater reg.	2	$50 ea	IDOC	refuge
Fishing w/o license	21	75 ea	IDOC	refuge
Trespass on NWR	1	50	FWS	refuge
Hunting in Closed Area	1	50	FWS	refuge
Custody of untagged ducks	2	50 ea	FWS	off refuge
Gift of untagged ducks	2	50 ea	FWS	off refuge
Transport untagged ducks	1	50	FWS	off refuge
Leave w/o tagging ducks	2	100 ea	FWS	off refuge
Transport w/o head and wing	1	75 ea	FWS	off refuge
No Firearm Owners Identification	2	100 ea	IDOC	refuge
Possession of alcohol by a minor	2	100 ea	IDOC	refuge
Gift of alcohol to a minor	1	250 ea	IDOC	refuge
Littering	2	75 ea	IDOC	refuge

I. EQUIPMENT AND FACILITIES

1. New Construction

Environmental Management Program (EMP)

In October, D & M Earthmoving, Inc., received contract approval to proceed with construction on the $4.2 million Lake Chautauqua Levee Restoration and Rehabilitation project funded under the EMP program (see Section D6).

Rain began falling on November 1, and resulting high river levels prevented any further drawdown activities. Approximately 1,200 acres of mudflats had been exposed by the beginning of November. All EMP construction was then halted by the COE on November 2, until the contractor had completed, submitted, and received approval on all administrative documents (environmental action plan, safety plan, etc.) relating to the EMP project. Flood conditions through the end of the year prevented any further construction at the stoplog structure. The COE approved plans to proceed with construction of the access road from the Recreation Area to the crossdike in December. The access road was under construction at the end of the year.

2. Rehabilitation

Lake Chautauqua Levee

Inspection of the west levee on March 9, revealed that a breach measuring 15 yards wide existed. Tree branches and other debris had floated in causing a log jam in the breach, probably preventing a larger blowout. There was also approximately 1,400 feet of the west levee that was below 437.5' MSL, the regulated height of the south spillway. The permitted height of the levee is actually 442.0 MSL. A major obstacle to the repair of the west levee was no accessibility for heavy equipment. Access to the west levee by heavy equipment had been prevented by the presence of the spillway to the south and the radial gates to the north.

Refuge staff solved the access problem by taking advantage of the low water level in June and repairing the crossdike. The Lake Chautauqua crossdike was constructed in 1969 and subsequently was breached during that winter. Since 1970 the hole in the crossdike had been a familiar site. The new John Deere (JD) 750B bulldozer and JD 410D backhoe/loader made quick work of the crossdike repair. On June 24, the hole in the crossdike was repaired and a 36 inch by 30 foot CMP with a 5 foot high stoplog riser was temporarily placed in the

crossdike. The repair of the crossdike provided us the only heavy equipment access to the west levee in over 20 years.

During the last week in June the 15 yard breach in the west levee was repaired.

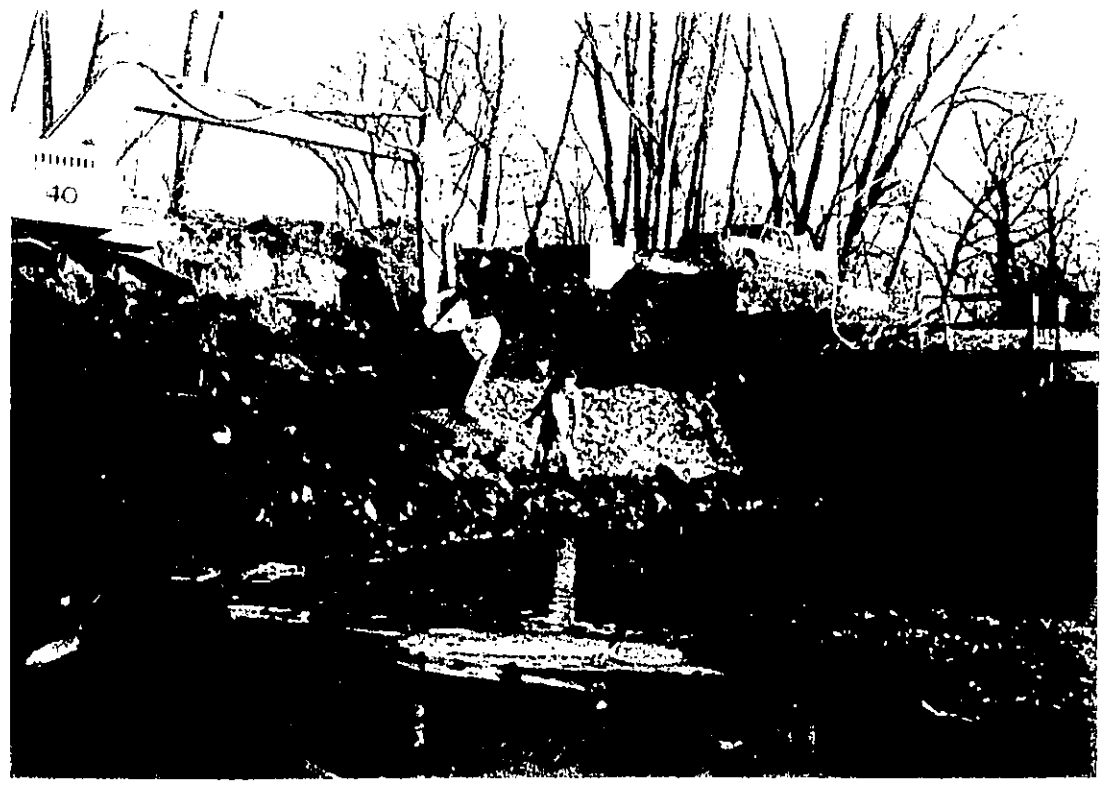
On August 1, high water in the south pool breached the recently repaired crossdike and floated the 36 inch x 30 foot long CMP with stoplog structure approximately 30 meters into the north pool. A 50 foot breach in the crossdike occurred. The CMP was retrieved and placed back in the crossdike with repairs again closing the crossdike on August 18.

Dozer and backhoe work on the south levee began in September and continued intermittently through November 10, to raise the road to its permitted height of 442 MSL. Flood conditions from November 10, through the end of the year halted levee rehabilitation activities.

A significant problem that Refuge staff must deal with is that heavy equipment must be shuttled back and forth from Meredosia Refuge to Chautauqua Refuge to complete rehabilitation work. To add to the problem the Refuge does not have a tractor-trailer to transport the dozer; a commercial hauler must be hired each time.

Quiver Creek Weir Slope Protection

RJS Constructors completed protection of the Quiver Creek Weir slope that began in November 1991. Completed work included: tree removal and sloping along 150 feet of bank, filter fabric, gabion baskets, riprap placed in gabion baskets, road re-aligned and graveled, and installation of a new catwalk. Regional Office Engineer Max Boyle made a final inspection on the Quiver Creek Slope Protection project on February 19. Cost of the project was $31,349.



A new catwalk, filter fabric, and gabion baskets with rip rap completed the project in February, 1992.

3. Major Maintenance

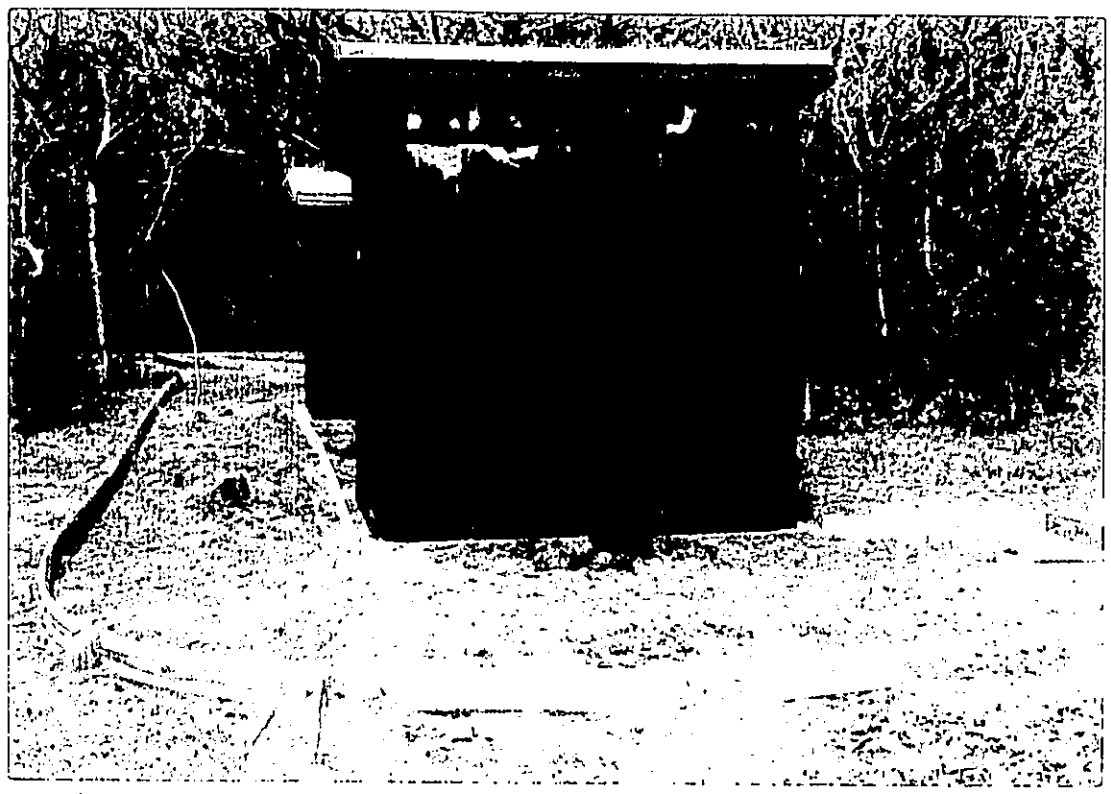
Above-ground Storage Tanks

The installation of two 1,000 gallon above-ground petroleum tanks began in November 1991 and was completed on January 2, 1992. Final inspection and approval was received from the Illinois Fire Marshal on January 27.

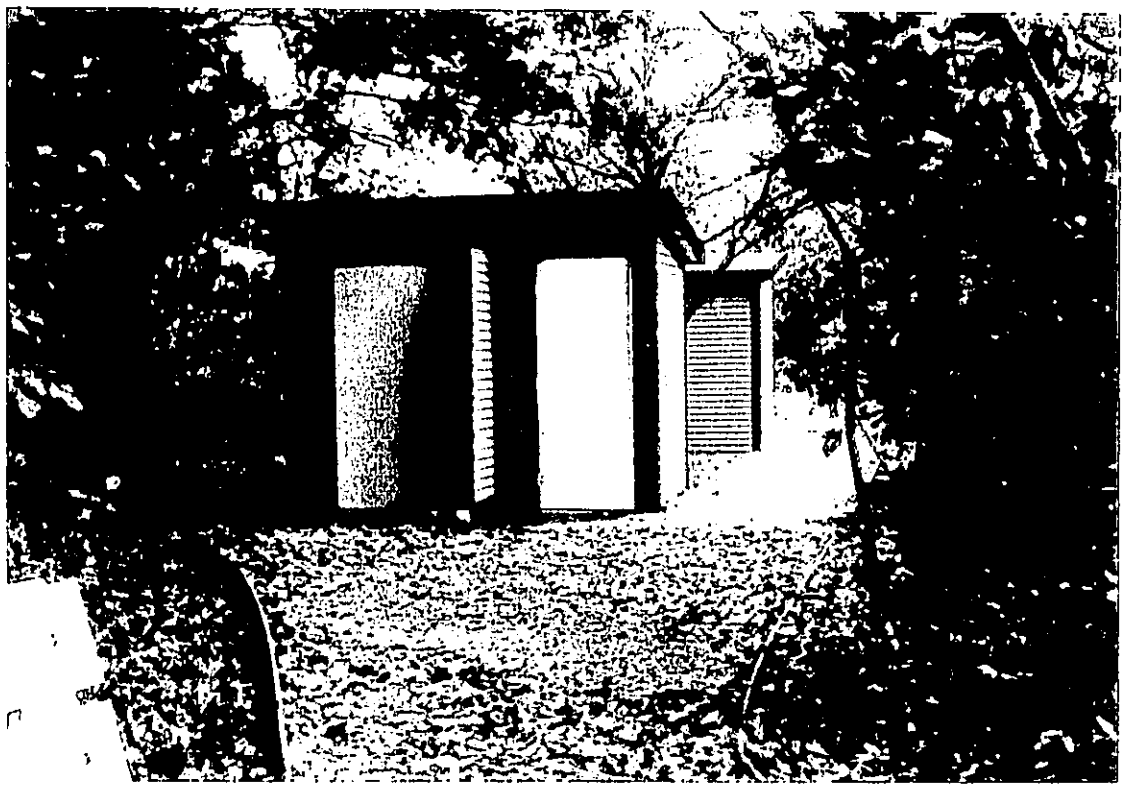
Two 500 gallon underground fuel tanks were removed on June 16, by J.C. Nelson Construction, Mason City, Illinois. The cost of the removal was $3,800. No contamination was found. The Illinois Office of the State Fire Marshal tank specialist Tom Spradlin and Regional Office engineer Tom Olson inspected the site.

Aboveground tanks are a definite improvement over old underground tanks with sporadic pumps.
5/92 EB

The outdoor restroom facilities at the headquarters building were removed and replaced in September. Two of the four restrooms accommodate wheelchair access.



Squirrels had enjoyed a dinner or two at the old outhouses at the entrance to the new Chautauqua Nature Trail.
4/91 EB



New outhouses completed in September in time for the Nature Trail dedication were a much needed replacement - except the squirrels don't seem to like them as much.
10/92 EB

On March 19, the staff was excited to see the arrival of a new John Deere 410D backhoe/loader. A new John Deere 750B bulldozer with low ground pressure 34 inch tracks was received on April 28!!! It didn't take long for MW Pittman to move these to Meredosia Refuge to start long needed levee rehabilitation work.

Using the 410D and 750B made short work of installation of water control structures by MW Pittman and BT Engelke.
5/92 EB

5. Communications Systems

The new base radio station installed in 1991 still has not been reprogrammed by the installer. They interchanged the send and receive frequencies for the Cass and Marshall County Sheriff's Department. It is operational, just not fully operational.

6. Computer Systems

Two new IBM computers which were purchased with year end funds were received in November from the Regional Office. In the "spirit" of cooperation, one of the computers was subsequently

given to the Mark Twain Refuge Complex office in exchange for a much older model IBM computer because they were in a bind due to all the new programs and software.

7. Energy Conservation

The new furnace that was installed in the Refuge headquarters in November 1991 became inoperative on April 27. The repairman stated that it was one that contained an engineering flaw and the manufacturer would replace it at no cost. The headquarters furnace was finally replaced on September 23, after a four month delay. We were fortunate it was summer.

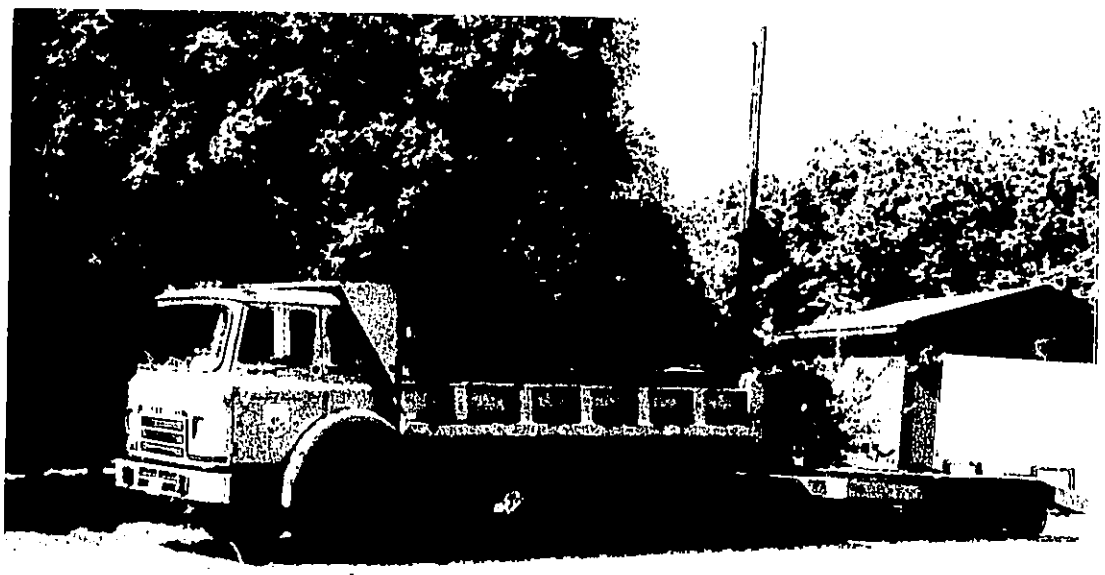
8. Other

The 1980 Plymouth Volare sedan delivery was put on excess available for public inspection January 9. The Volare sold for $505.00.

On February 25, MW Pittman and BT Engelke traveled to Sherburne Refuge to pick up a 1973 Ford dump truck (14,000 miles) acquired from that station as excess property. The engine was overhauled locally, and the carburetor was upgraded from a two to a four-barrel for a cost of $2,490. On February 26, MW Pittman and BT Engelke traveled to Tamarac Refuge to pick up a tri-axle heavy equipment trailer acquired as excess property. The "shopping spree" was concluded on February 27, when the two pieces of heavy equipment arrived at CTQ. Such a deal!

On August 8, Wappelo District loaned us their road grader for some much needed road and levee maintenance and we gave them our D-4 bulldozer and D-4 "Donor Dozer".

A levee plow was picked up as excess property from Hatchie Refuge in July. The levee plow will be used for Refuge and private lands projects.



This 1973 Ford dump truck was acquired from Sherburne and the trailer was picked up at Tamarac.
2/27/92 EB

J. OTHER ITEMS

1. Cooperative Programs

Refuge staff assisted the Illinois Department of Conservation with prescribed fire activities at the Revis Prairie, Mason County, on March 3. Approximately 10 acres of high quality loess hill prairie were burned.

Refuge staff assisted the Illinois Natural History Survey with an ongoing study of lead shot presence in waterfowl. The Refuge airboat equipped with spotlights was used to nightlight wood ducks on March 7, at Anderson Lake Wildlife Management Area. Though many ducks were seen on the lake during the day and at dusk, none were seen at night and no ducks were captured. Other assistance with cage traps was more successful. A total of 17 wood ducks were cage trapped and banded.

Donna Hertlein, COOP student from Southern Illinois University, Carbondale, Illinois, began her eight week work assignment on June 15, and finished on August 8. Donna is in

the Masters program with a scheduled completion date of August 1993. She will return in January 1993 for another eight week work assignment.

Refuge staff and YCC assisted the Illinois Department of Conservation biologists with the annual resident giant Canada goose roundup on June 24. Strip mine pits have become a haven for the resident geese in Fulton and Knox Counties. Biologists have been banding the resident population for several years to determine population dynamics. A total of 350 geese were captured and banded. The geese were herded from the water areas with the aid of a helicopter.

The Illinois Natural History Survey maintains a research laboratory and storage building on the Refuge under a 99-year special use permit. The permit was issued for $1 by the U. S. Biological Survey in 1939. This facility is recognized for its outstanding research on waterfowl and other wildlife in Illinois.

In cooperation with the North-Central Forest Experiment Station, in June four gypsy moth traps were placed: 1) north of the office building; 2) west of the recreation area; 3) at the headquarters parking lot; and 4) in the north parking lot at Boatyard #3. In November, they were taken down and no gypsy moths were caught.

The Ridge Lake Fire Protection District provided fire protection services again this year for all Refuge buildings. The yearly charge for this service was $100.00. Fortunately, we did not need to use their services.

2. Other Economic Uses

A special use permit for $10.00 was issued to Gudat's Chautauqua Lake Bar & Grill authorizing a corner of the building that is located on the Refuge. This permit was initiated in 1968 to resolve a trespass dispute dating from the initial establishment of the Refuge in 1936.

Commercial fishermen were charged $100 for a permit to fish on the Refuge. Twelve permits were issued which generated $1,200 for the Refuge Revenue Sharing Fund.

Helicopter driving geese on a lake in Fulton County.
6/24/92 RE

YCC enrollees really got into catching geese.
6/24/92 RE

4. **Credits**

Britton: Primary author
Clanin: Editing, layout, and binding
Engelke: Data input, editing, tables, and graphics
French: Editing
Hertlein: Data input and editing
Romano: Editing

K. FEEDBACK

In 1992 Chautauqua Refuge had four outstanding violations for citations written in 1990. Arrest warrants had been issued for three of these violators due to their "no-show" at scheduled court hearings. Fish and Wildlife Service cases are identified as petty violations, therefore the arrest warrants can be served only by U.S. Marshals. This means that arrest warrants for Fish and Wildlife Service cases are not entered into the National Crime Information Center (NCIC), nor in any other crime related computer database.

Efforts to resolve the four outstanding violations found some very interesting information. Two of the four violators were convicted felons. One of the felons was incarcerated. The other felon had been recently released after spending time in jail for burglary, was on probation, and was due to go back to jail on another burglary charge.

From the Refuge Officer's standpoint it appears that the Federal Judicial Accounting System for Refuge violations does not favor the apprehension of violators if they choose to "ignore" the judicial system. This is disappointing and there should be a more equitable and effective method of serving outstanding warrants.

CAMERON-BILLSBACH UNIT

ILLINOIS RIVER NATIONAL WILDLIFE AND FISH REFUGES

ANNUAL NARRATIVE REPORT
CALENDAR YEAR 1992

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

INTRODUCTION

The 1,708.5 acre Cameron-Billsbach Unit (Unit) is located in Marshall County, between Sparland and Henry, Illinois. This acreage includes 1,059 acres backwater habitat, 634 acres bottomland hardwoods, 10 acres upland forest, and 5 acres administrative lands (levees and old building sites). The Unit is on the Illinois River extending from river mile 192 to 195 and is 64 miles upriver from Chautauqua National Wildlife Refuge. The purpose of the Unit is to serve as an inviolate sanctuary for migratory birds. The Illinois Department of Conservation Sparland Conservation Area is contiguous to the south boundary.

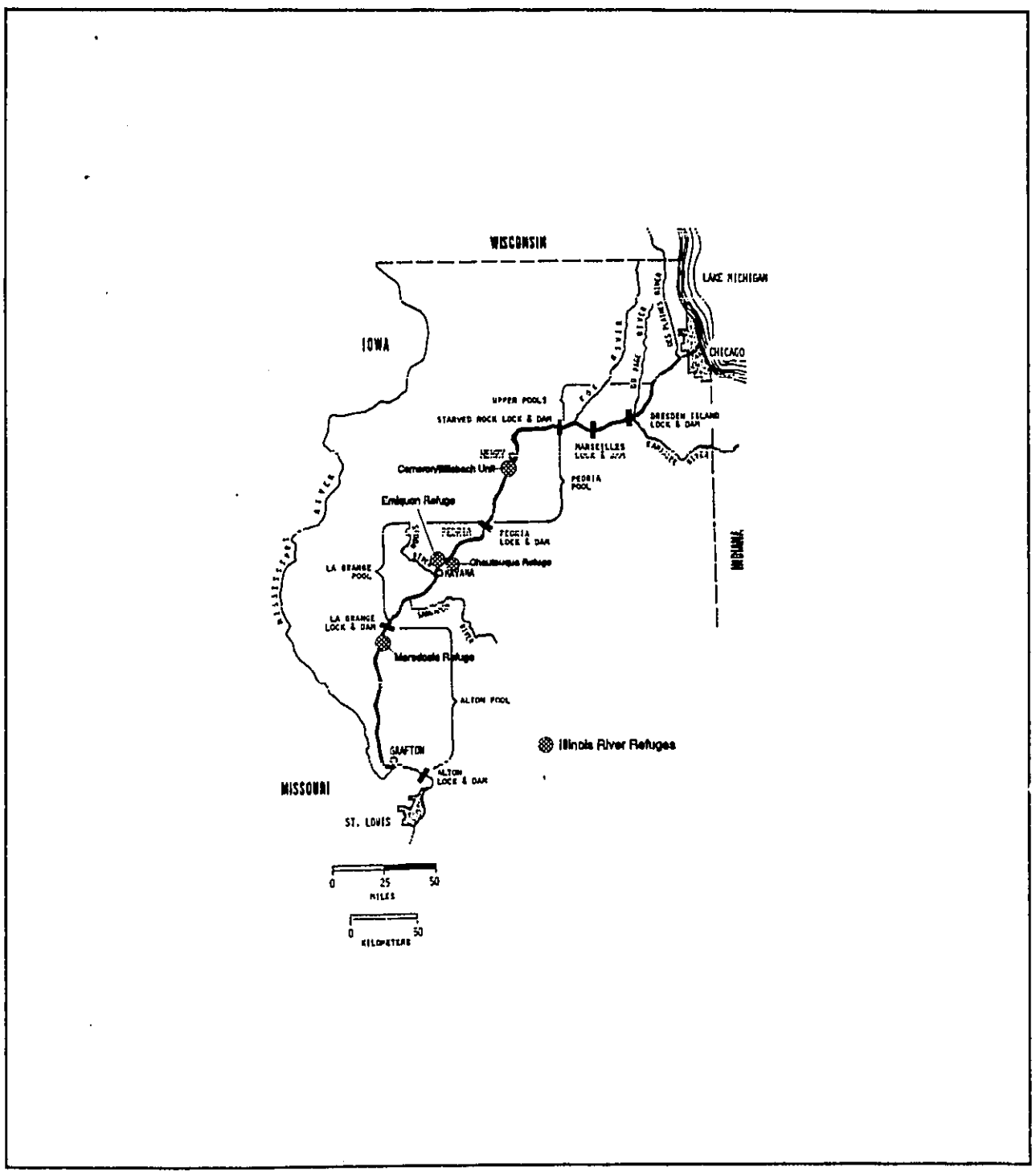
The 636.5 acre Cameron Unit is located along the west side of the Illinois River and is composed of bottomland forest, old fields, and backwater (Weis and Meridian Lakes) habitat. The late Judge Glen J. Cameron of Pekin, Illinois, donated the land to the U.S. Fish and Wildlife Service to create the Cameron Unit on May 17, 1958.

The 1,072 acre Billsbach Unit is located along the east side of the Illinois River and joins the center portion of Billsbach Lake. The Illinois Chapter of The Nature Conservancy purchased the land from the Armour Club and then sold the land to the Fish and Wildlife Service on December 22, 1981, for $30,000. The Billsbach Unit is composed almost entirely of backwater habitat comprising Billsbach Lake.

The three backwater lakes that make up Cameron-Billsbach Unit exhibit typical characteristics of most backwater lakes within the Illinois River system. During the early 1900's, these bottomland water areas were almost pristine, even though a surprising amount of forest had been cleared for cultivation. The waters were much clearer then and were stained from organic matter rather than from silt. Between 1900 and 1938, there were major impacts upon the Illinois River water level. Water was diverted in appreciable volume from Lake Michigan to the Illinois River when the Chicago Sanitary and Ship Canal was opened on January 1, 1900. Diversion increased steadily until about 1920. Navigation dams were completed on the Illinois River during the 1930's. Diverted water, combined with increased water levels required for navigation, resulted in the low midsummer river levels increasing by as much as seven feet. This diversion resulted in many smaller water areas merging into larger bodies of water. Thousands of acres of forested bottomland, (primarily pin oak and pecan) died from inundation. The three lakes on the Cameron-Billsbach Unit doubled in size from 1903 to 1969:

Weis Lake increased from 151 acres to 328 acres (+118%); Billsbach Lake increased from 378 acres to 1,083 (+186%); and Meridian Lake increased from 22 acres to 48 acres (+111%). The end result was a huge increase in water areas, loss of prime wildlife habitat, and severe sedimentation causing poor water quality.

Figure CMU-1, Illinois River Navigation Pools - Cameron-Billsbach Unit.



INTRODUCTION

TABLE OF CONTENTS

Page

F. HABITAT MANAGEMENT (cont.)

G. WILDLIFE

H. PUBLIC USE

Page

H. PUBLIC USE (cont.)

I. EQUIPMENT AND FACILITIES

J. OTHER ITEMS

K. FEEDBACK

Nothing to Report

B. CLIMATIC CONDITIONS

Precipitation data for Cameron-Billsbach Unit was obtained from the U.S. Army Corps of Engineers weather station located in Peoria, Illinois, at river mile 164.2, approximately 28 miles downriver from the Cameron-Billsbach Unit. Precipitation for the year totaled 35.85 inches, which is 1.85 inches below the 19-year average (Table CBU-1).

Table CBU-1, 1992 Precipitation, Cameron-Billsbach Unit.

Month	1992 Precipitation	1969-1987 Average	Difference
January	1.05	1.42	-0.37
February	1.60	1.38	+0.22
March	2.00	2.96	-0.96
April	1.52	3.64	-2.08
May	0.87	3.99	-3.12
June	1.30	4.59	-3.29
July	11.18	3.89	+7.29
August	0.22	2.97	-2.75
September	6.31	3.96	+2.35
October	1.06	3.36	-2.30
November	5.92	2.90	+3.02
December	2.82	2.70	+0.12
TOTALS	35.85	37.70	-1.85

D. PLANNING

5. Research and Investigations

The infamous "Conrad Report" titled "Preliminary Cultural Resources Identification and Predictive Modeling for the Chautauqua, Cameron, and Meredosia National Wildlife Refuges", was finally received on December 30. The Service first contracted ($10,000) with Western Illinois University during FY 88 to perform a detailed inventory of archeological resources on the Refuge Complex. Six months in the making and four years fermenting, the report was submitted to the Service as a "draft" final.

E. ADMINISTRATION

1. Personnel

There are no personnel specifically assigned to the Cameron-Billsbach Unit. Refuge personnel from Illinois River National Wildlife and Fish Refuges perform administrative and management activities.

8. Other

Right-of-Way Permit, Villiger Brothers

In 1990, approximately one acre of trees and brush was cleared on the Cameron Unit in conjunction with the construction of an erosion control structure on neighboring ground. The landowner, Villiger Brothers, and the Marshall County Soil Conservation Service (SCS) shared the cost for the structure. SCS designed the structure and advised the Villiger Brothers to contact adjacent landowners to notify them of the proposed construction and verify ownership. They informed SCS that the entire structure would be situated on property that they owned and did not see the need to notify the Service.

When constructed, the erosion control structure was clearly on Service land. SCS claimed the contractor extended the work beyond the original design in order to find proper fill for the dam. The boundary was relocated in the vicinity of the structure and the extent of the encroachment measured about one acre.

An after-the-fact environmental assessment, environmental action memorandum, and compatibility determination were completed for the right-of-way that was "inadvertently" acquired for private purposes. The Villiger Brothers received a right-of-way permit for the structure on March 28, 1991, because the structure was ultimately benefiting Refuge resources.

The Environmental Assessment stipulated mitigation measures which included erosion control, planting and maintenance of trees on the disturbed site, and additional planting and maintenance of pin oaks and pecans on former cropland within the nearby Farmer's Home Administration Conservation Easement on the Villiger Brothers' land. The planting of 645 pin oaks and 645 pecan trees was completed on July 8, 1991.

An August 1992 inspection revealed that none of the trees had survived. Dead seedlings were found sticking out of the ground. Apparently the herbicide that was used was too strong because the rows where trees had been planted were nothing but sterile bare ground. Between the rows, natural vegetation had grown up. The trees will have to be replaced by the Villiger Brothers according to the mitigation measures which stated the trees must live for five years.

Refuge Revenue Sharing Payment

In June, a revenue-sharing check in the amount of $ 2,297 was sent to the treasurer of Marshall County for Calender Year 1991. As in other years, revenues and the supplemental appropriations were insufficient to make a full payment. The check was 89.5 percent of full entitlement (Table CBU-2).

Table CBU-2, Refuge Revenue Sharing Payments, Cameron-Billsbach Unit, 1982-1991.

Year	Payment	Percent	Year	Payment	Percent
1991	$ 2,297	89.5	1986	$ 3,875	60
1990*	$ 2,400	93.5	1985	$ 4,153	64
1989	$ 5,023	78	1984	$ 4,638	74
1988	$ 4,587	71	1983	$ 4,820	77
1987	$ 3,804	59	1982	$ 5,670	91

* Marshall County lands were reappraised in 1990 with a decrease in value from $860,000 to $342,000. The decrease in value was a result of reappraisal of open water areas (1,059 acres).

F. HABITAT MANAGEMENT

1. General

There are no active habitat management programs on the Cameron-Billsbach Unit. A deteriorated dike system is located on the Cameron Unit. All efforts to rehabilitate facilities have been focused on Chautauqua Refuge and Meredosia Refuge due to the greater abilities to contribute to resource objectives. After these two Refuge facilities are rehabilitated, efforts will then be focused on the Cameron-Billsbach Unit.

2. Wetlands

Approximately 1,059 acres (62 percent) of Cameron-Billsbach Unit is composed of backwater habitat created by the Illinois River. The Cameron Unit includes most of Weis Lake (328 acres) and about half of Meridian Lake. The Billsbach Unit includes two-thirds of Billsbach Lake (1,083 acres). Water levels on both areas are influenced by the fluctuations of the Illinois River due to the Peoria Lock and Dam which is located 28 miles downstream. The Cameron-Billsbach Unit extends from river mile 192 to 195.

River levels at the Cameron-Billsbach Unit (Henry reading) ranged from a high of 446.9 mean sea level (MSL) on November 28, 1992, to a low of 439.7 MSL on August 11, 1992 (Table CBU-3). The months of August (3.0 feet) and November (6.4 feet) exhibited the greatest fluctuation in river levels.

Table CBU-3, 1992 Illinois River Levels - Henry, Illinois.

Month	High (Date)	Low (Date)	Differential	Average
January	441.8 (25)	440.6 (01)	1.2	441.4
February	443.3 (21)	440.9 (04)	2.4	441.8
March	442.3 (01)	441.0 (06)	1.3	441.7
April	442.8 (22)	441.0 (14)	1.8	441.7
May	441.8 (06)	440.4 (25)	1.4	441.1
June	441.9 (13)	440.4 (27)	1.5	440.7
July	442.6 (28)	440.4 (01)	2.2	441.4
August	442.7 (02)	439.7 (11)	3.0	440.9
September	442.9 (11)	440.4 (01)	2.5	441.4
October	441.3 (01)	440.5 (31)	0.8	440.8
November	446.9 (28)	440.5 (01)	6.4	444.8
December	446.5 (01)	441.9 (15)	4.6	444.3

3. Forests

The Cameron-Billsbach Unit includes 634 acres of bottomland hardwoods, and 10 acres of upland woodlands. Fifty-five tree species have been identified in the vicinity. Primary bottomland species include cottonwood, sycamore, ash, swamp white oak, and silver maple. Primary upland tree species include northern red oak, black oak, mockernut hickory, and flowering dogwood.

12. Wilderness and Special Areas

The Cameron Research Natural Area, established in 1972, is a 177-acre tract located between the south boundary of the Cameron Unit and Crow Creek. It is bottomland hardwoods comprised of predominantly a silver maple-American elm association. Other species that are present in the natural area include red maple, slippery elm, swamp white oak, cottonwood, sycamore, and ash.

14. FmHA Conservation Easement

Villiger Brothers

Two tracts of land located adjacent to the Billsbach Unit were included under FmHA Conservation Easement on March 12, 1990. The tracts measure 17.70 and 18.01 acres and total 35.71 acres.

G. WILDLIFE

1. Wildlife Diversity

A variety of wildlife species occur within the bottomland and upland areas of the Cameron-Billsbach Unit. Forty-five mammal species, 250 bird, 48 reptile, 19 amphibian, 102 fish, 10 crustacean, and 37 mollusk species have been identified within the vicinity.

2. Endangered and/or Threatened Species

The northern bald eagle was the only observed Federally endangered species using the area. In spring and fall, aerial census work is completed by the Illinois Natural History Survey to document bald eagle use within the Illinois River Valley. One adult eagle was recorded in October of 1992.

Of the 37 birds listed as endangered species by the Illinois Endangered Species Protection Board, 14 have been documented using the Cameron-Billsbach Unit. The great egret, double-crested cormorant, black-crowned night heron, and northern bald eagle were sighted using the area in 1992. Due to other priorities and insufficient personnel, censuses are not conducted by Refuge staff on a regular basis.

3. Waterfowl

Twenty-two species of waterfowl have been observed using the Cameron-Billsbach Unit. Primary species are the mallard, black duck, northern pintail, green-winged teal, blue-winged teal, American wigeon, wood duck, northern shoveler, redhead, ring-necked duck, canvasback, lesser scaup, bufflehead, ruddy duck, common merganser, hooded merganser, common goldeneye, and Canada goose.

Waterfowl use days (Table CBU-4) are calculated from data obtained from weekly aerial surveys conducted in the spring (Table CBU-5) and fall (Table CBU-6) by the Illinois Natural History Survey. Since surveys are not always funded throughout the entire waterfowl migration period, these data represent only the available data, and are considered minimum use days.

Table CBU-4, Waterfowl Use Days, Cameron-Billsbach Unit, 1983-1992.

	January-March	April-June	July-September	October-December	Total	% Variance from 10-year average
			Ducks			
1983	126,111	38,460	23,400	29,065	217,036	+ 37
1984	37,129	27,675	21,447	50,990	137,241	- 5
1985	37,139	14,180	19,235	152,050	222,604	+ 35
1986	38,790	13,530	19,710	30,600	102,630	- 30
1987	19,152	6,530	16,080	68,163	109,925	- 25
1988	27,365	13,120	16,980	45,655	103,120	- 29
1989	13,675	19,405	10,680	104,465	148,225	+ 2
1990	61,140	15,540	1,800	68,757	147,237	+ 1
1991	13,873	0	4,275	92,423	110,571	- 24
1992	31,590	37,150	6,395	76,910	152,045	+ 5
10 year average	40,596	18,559	14,000	71,907	145,063	
			Geese			
1983	95,890	150	750	2,760	99,550	+ 72
1984	3,075	--	--	4,270	7,345	- 26
1985	3,010	155	30	24,035	27,230	- 4
1986	19,350	4,590	--	18,150	42,090	+ 33
1987	855	243	3,850	8,665	13,613	- 52
1988	2,400	245	--	12,200	14,845	- 48
1989	2,560	455	1,520	18,135	22,670	- 20
1990	20,995	600	0	15,035	36,630	+ 23
1991	0	0	4,500	7,698	12,198	- 57
1992	2,820	720	0	2,675	6,215	- 78
10 year average	15,096	795	1,521	11,362	28,239	

Table CBU-5, Peak Spring Waterfowl Species Data, Cameron-Billsbach Unit, 1983-1992.

SPECIES	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Aver. 83-92
MALLARD	2050	450	140	2550	240	720	400	325	900	2400	1018
BLACK DUCK	65	30	10	110	20	40	40	20	0	125	46
PINTAIL	0	0	0	0	0	0	50	40	0	50	14
G-W TEAL	325	0	0	25	50	50	20	0	0	400	87
B-W TEAL	135	0	0	30	205	30	50	0	0	250	70
A. WIGEON	175	50	0	40	60	10	30	60	0	100	63
N. SHOVELER	80	0	0	0	160	250	140	20	0	0	65
REDHEAD	80	0	0	0	0	50	0	20	0	0	15
RINGNECK	525	180	140	5	75	35	60	180	0	0	120
CANVASBACK	125	135	50	30	50	40	50	80	0	0	29
L. SCAUP	875	750	405	250	125	400	260	405	275	300	405
BUFFLEHEAD	40	0	0	20	20	25	0	0	0	0	11
RUDDY DUCK	40	100	45	93	0	50	0	5	0	0	29
C. MERGANSER	60	50	0	2	60	70	45	75	50	200	66
H. MERGANSER	10	15	130	0	30	0	10	0	0	0	4
C. GOLDENEYE	200	135	0	22	195	100	85	385	75	200	153
CANADA GOOSE	4650	15	125	1812	150	150	40	475	0	200	749
SNOW GOOSE	125	275	0	0	0	0	0	15	0	0	54

Table CBU-6, Peak Fall Waterfowl Species Data, Cameron-Billsbach Unit, 1983-1992.

SPECIES	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Aver. 83-92
MALLARD	575	650	1450	400	660	800	3100	10750	3800	570	2276
BLACK DUCK	35	20	20	30	40	50	75	40	150	85	55
GADWALL	0	20	80	0	0	0	0	0	50	0	15
PINTAIL	0	0	60	0	30	50	50	25	775	30	102
G-W TEAL	105	525	450	100	325	225	275	0	75	50	213
B-W TEAL	230	230	165	700	305	110	40	40	150	850	282
A. WIGEON	50	130	400	100	150	60	160	0	120	0	117
N. SHOVELER	35	5	105	0	225	40	175	0	0	0	59
REDHEAD	0	0	50	0	0	0	15	0	10	0	8
RINGNECK	30	50	440	60	60	100	125	0	20	200	106
CANVASBACK	0	20	175	0	50	25	80	0	0	0	35
L. SCAUP	75	60	1100	125	175	200	385	100	25	0	225
BUFFLEHEAD	0	0	60	15	10	15	15	0	0	0	12
RUDDY DUCK	0	50	250	40	30	0	50	0	0	0	42
H. MERGANSER	0	10	15	20	10	10	90	0	0	0	16
C. MERGANSER	0	30	125	30	65	45	30	0	0	125	45
RB MERGANSER	0	0	25	25	0	0	0	0	0	0	5
C. GOLDENEYE	10	750	340	340	155	210	240	0	0	0	205
CANADA GOOSE	75	135	625	410	250	285	305	0	400	100	259
SNOW GOOSE	0	30	225	55	30	75	65	0	0	0	48

Duck use days in 1992 totaled 152,045 which is five percent above the 10-year average (1983-1992) of 145,063 use days. January-March duck use was substantially below (-22%) the 10-year average, while April-June duck use was double (+109%) the average. July-September duck use was less than half (-55%) the average, while October-December was seven percent above the 10-year average use days.

Canada geese accounted for all of the goose use on the Cameron-Billsbach Unit in 1992. Goose use was down substantially (-78%) with only 6,215 total use days, compared to the 10-year (1983-1992) average of 28,239 use days.

Peak spring duck population data shows that eight species (mallard, black duck, northern pintail, green-winged teal, American wigeon, lesser scaup, common merganser, common goldeneye) exceeded the 10-year (1983-1992) average, while seven duck species (northern shoveler, redhead, ringnecked duck, canvasback, bufflehead, ruddy duck, hooded merganser) that are usually present were not observed. The Canada goose spring count peaked at 200, 74 percent below the 10-year average. Snow geese have been almost entirely absent in spring since 1984.

Fourteen duck species' population numbers during fall migration were lower than the 10-year average peak population. Three species (mallard, northern pintail, and green-winged teal) actually had lower numbers, whereas 11 species (gadwall, American wigeon, northern shoveler, redhead, canvasback, lesser scaup, bufflehead, ruddy duck, hooded merganser, red-breasted merganser, and common goldeneye) were not observed in any of the fall surveys. Peak fall numbers of Canada geese were only 39 percent of the 10-year peak population average.

Wood Duck Box Nest Box Program

A total of 12 wood duck nest boxes are available; however, due to high water, only nine were checked. Five of the nine (55%) boxes checked were used by wood ducks. There was an 80 percent successful nest rate with four of the five boxes producing young. Three of the four boxes remaining had no use, and one box appeared to have been used by a woodpecker.

The four successful nests produced a total of 46 eggs that included 20 hatched, and 26 unhatched eggs. Average clutch size per successful nest was five, with an overall hatch rate of 43 percent.

Table 7, Wood Duck Nest Box Data 1987-1992, Cameron-Billsbach Unit.

Year	# Boxes	# Used	# Succ.	# Hatched
1992	**9	5	4	20
1991	11	*	*	*
1990	12	7	5	45
1989	15	4		37
1988	15	*	*	*
1987	15	1		4

* No nest box data were gathered in 1988 and 1991.
** This was a partial check of boxes; there were a total of 12 boxes

4. Marsh and Water Birds

American coots account for about 25 percent of the use in this wildlife category. Coots peaked at 50 in March during the spring migration, and peaked at 800 in October during the fall migration. Great blue heron, great egret and double-crested cormorant typically make up 75 percent of the use days in this group. Other species commonly found are black-crowned night heron, American bittern, and pied-billed and horned grebes.

5. Shorebirds, Gulls, Terns and Allied Species

Thirty-two species of shorebirds, gulls, terns, and allied species have been observed on the Cameron-Billsbach Unit. Herring and ring-billed gulls account for the vast majority of use in this wildlife category. Killdeer, spotted and common sandpipers, common and black terns, greater and lesser yellowlegs, and pectoral sandpipers are commonly observed using the area.

6. Raptors

Great horned and eastern screech owls, along with red-tailed hawks, are the most commonly observed raptors. Barred owls, American kestrels, and bald eagles are also occasionally seen using the area.

7. Other Migratory Birds

Approximately 150 species of other migratory birds are known to use the area surrounding the Cameron-Billsbach Unit. Major species groups include woodpeckers, cuckoos, flycatchers, martins, swallows, wrens, nuthatches, kinglets, thrushes, warblers, vireos, grosbeaks, sparrows, and orioles.

Mourning doves nest along the edge of the Cameron-Billsbach Unit where adjacent agricultural land meets the bottomland forest areas. Peaks normally occur in August to September where approximately 40 - 80 doves can be counted in a normal year. Woodcock also use the area during migration. Though seldom seen, they are often heard.

8. Game Mammals

Game mammals on the Cameron-Billsbach Unit include the eastern cottontail, gray and fox squirrels, raccoon, and white-tailed deer. Furbearers include the opossum, muskrat, coyote, red and gray fox, long-tailed weasel, mink, badger, striped skunk, river otter, bobcat, and beaver.

10. Other Resident Wildlife

Ring-necked pheasant, wild turkey, and bob-white quail are the most common resident bird species. Turtles include the common snapper, painted, map, mud, red-eared, stinkpot, and smooth softshell. Snakes include the northern copperhead, black rat, hognose, king, milk, several species of water snakes, and several species of garters. There are 19 species of amphibians that include chorus, leopard, and tree frogs and two species of toads; and the small-mouthed, tiger, and eastern tiger salamander.

11. Fisheries Resources

The Illinois River provides a substantial fisheries resource despite water quality problems attributable to agricultural production. A total of 10? fish species have been identified. Primary sport fishes include the black and white crappie, bluegill, smallmouth and largemouth bass, black, brown, and yellow bullheads, channel and flathead catfish, sauger, walleye, and yellow perch. Commercial fishes include carp, buffalo, chub, carpsucker, smelt, gar, channel catfish, and flathead catfish.

The Illinois Department of Public Health and Illinois Environmental Protection Agency have listed carp over 15 inches and all channel catfish as having high levels of contaminants. They advise that no one should eat either of these species from the Illinois River headwaters to the Peoria Lock and Dam, which includes the Cameron-Billsbach Unit.

H. PUBLIC USE

1. General

The Cameron-Billsbach Unit is open to boat access only. A right-of-way for land-based public access has never been acquired. Recreational boating, fishing, mushroom and berry picking, wildlife viewing, and photography are available.

17. Law Enforcement

Helicopter flights were conducted on June 30 and July 23 in coordination with the Air National Guard (Operation Cash Crop) in search of cultivated marijuana on Service lands. An August 27 flight was scheduled but had to be canceled due to poor weather conditions. No cultivated plants were observed during the two flights that were completed.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement

The only facility on the Cameron-Billsbach Unit is an old wooden shed sided with asbestos material. The shed is deteriorating and will be removed. Illinois law requires that asbestos cannot be left on land after being torn down, but may be placed in a landfill. The destruction of this facility is on the list of "to do's."

6/92 EB

J. OTHER ITEMS

4. Credits

Britton:	Writing, data input
Hertlein:	Data input, editing
Clanin:	Editing, binding
French:	Editing
Engelke:	Editing

MEREDOSIA NATIONAL WILDLIFE REFUGE

ILLINOIS RIVER NATIONAL WILDLIFE AND FISH REFUGES

ANNUAL NARRATIVE REPORT
Calendar Year 1992

U. S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

INTRODUCTION

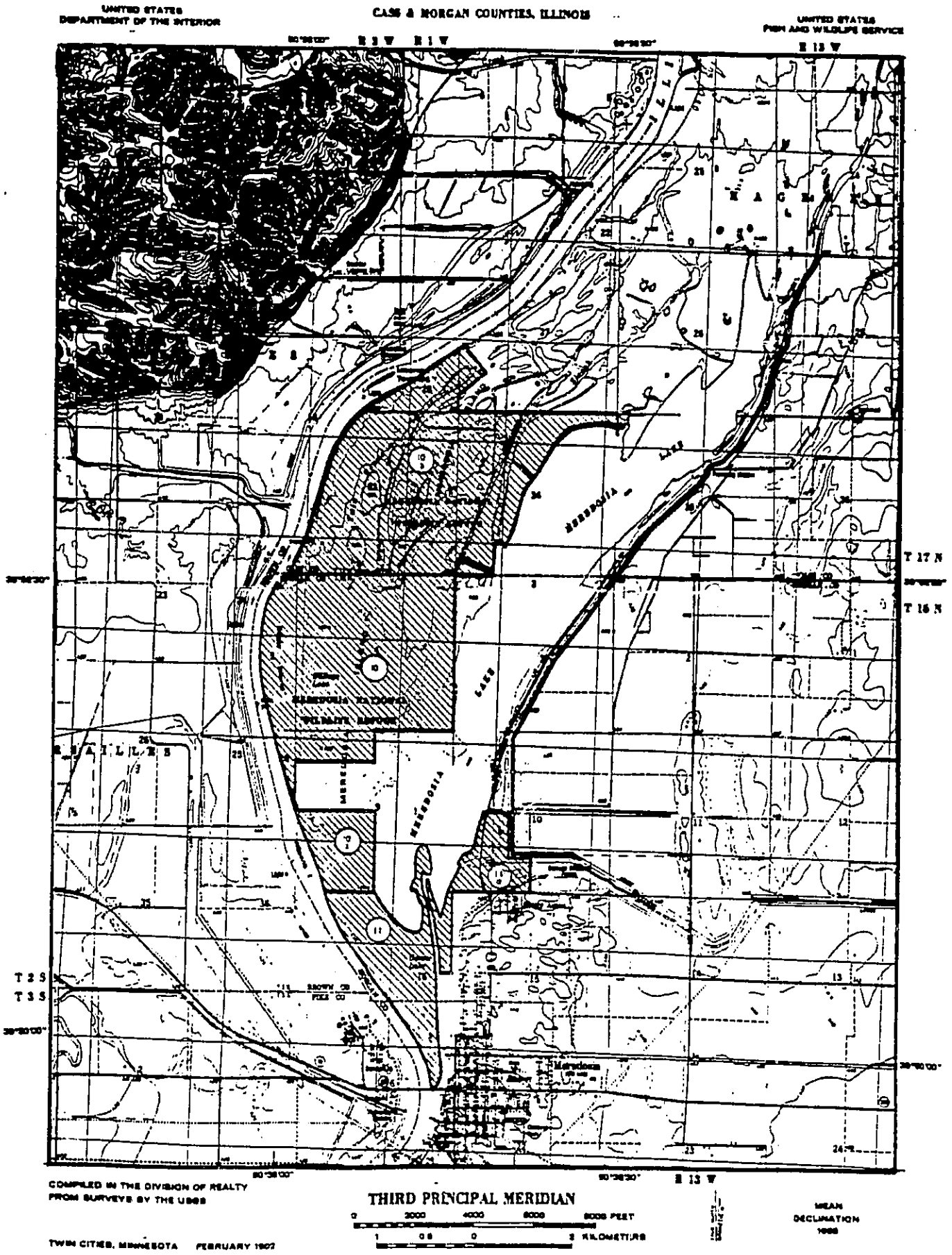
The 2,216.04 acre Meredosia National Wildlife Refuge (Refuge), is located in the Illinois River Valley, Morgan and Cass Counties, Illinois. Meredosia Refuge is administered as a part of the Illinois River National Wildlife and Fish Refuges Complex (Complex). The Refuge is about 50 miles southwest of the Complex headquarters located on Chautauqua Refuge.

Meredosia Refuge was established to provide an inviolate sanctuary for migratory birds, primarily for waterfowl. The Illinois River forms the south and west boundaries; Meredosia Lake forms most of the east boundary; and private land joins the north boundary. Meredosia Lake (1,485 acres) is an important and prominent feature of the Meredosia Refuge wetland complex that has been identified for land acquisition. The Refuge extends along the Illinois River from river mile 71.5 to 76.7.

Meredosia Island is a long narrow peninsula that separates Meredosia Lake from the Illinois River. The Refuge and adjoining Meredosia Lake are important resting, feeding, and sanctuary areas for waterfowl and other migratory birds using the Illinois River corridor. Early history indicated that the Meredosia area was a favorite camping and hunting area for Native Americans. A group of Native Americans lived on Meredosia Island until the big flood of 1844. About 95 percent of the Refuge is located on Meredosia Island.

Ownership changed during the early 1900's and through the Depression years. Duck hunting clubs purchased most of the area. These early clubs were owned by wealthy members who intensively managed the area for waterfowl hunting. The Chicago-Meredosia Gun Club owned the land for many years. Mr. James Anderson, Sr., purchased Chicago-Meredosia Gun Club and renamed it the Anderson Gun Club. The U. S. Fish and Wildlife Service acquired the initial land base by donation from the estate of Mr. Anderson through The Nature Conservancy on May 9, 1973.

Figure MDA-1, Meredosia National Wildlife Refuge.



Page

TABLE OF CONTENTS

Page

F. HABITAT MANAGEMENT (cont.)

G. WILDLIFE

H. PUBLIC USE

Page

H. PUBLIC USE (cont.)

I. EQUIPMENT AND FACILITIES

J. OTHER ITEMS

K. FEEDBACK

Nothing to Report

A. HIGHLIGHTS

The Meredosia Refuge land acquisition program was organized and revitalized in 1992. Two key tracts of land were acquired. Five signed options were received involving another 671.38 acres at a cost of $796,000 (Section C.1).

The Meredosia Refuge land acquisition initiative received a Fiscal Year (FY) 1993 $500,000 special Congressional appropriation from the Land and Water Conservation Fund (Section C.3).

Habitat, facility, and administrative **"Goals"** were developed for Meredosia Refuge (Section D.6).

Levee and impoundment restoration continued (Section F.2).

A new equipment building was planned, approved, and funded (Section I.1).

B. CLIMATIC CONDITIONS

Weather data for the Meredosia Refuge area are recorded by the U.S. Army Corps of Engineers (Corps), at the La Grange Lock and Dam. The La Grange Lock and Dam is located at river mile 80.1, approximately four miles upriver from Meredosia Refuge. Temperature readings are not kept at the La Grange station. Precipitation at Meredosia Refuge totaled 33.67 inches, which is approximately six inches below the twenty-year average (Table MDA-1). Normally, over half of the precipitation falls during the months of April through August. Annual snowfall normally accounts for less than 10 percent of the annual precipitation. Winter temperatures as low as -20° and summer temperatures as high as 110° have been recorded.

Table MDA-1, 1992 Precipitation - Meredosia Refuge.

Month	Precipitation	Average	Difference
January	0.55	1.66	- 1.11
February	1.51	1.34	+ 0.17
March	2.37	3.46	- 0.99
April	2.50	4.09	- 1.59
May	0.68	4.43	- 3.75
June	0.56	4.31	- 3.75
July	8.25	4.50	+ 3.75
August	0.91	3.64	- 2.73
September	4.27	4.13	+ 0.14
October	1.50	3.41	- 1.91
November	7.14	2.34	+ 4.80
December	3.43	2.49	+ 0.99
TOTALS	**33.67**	**39.80**	**- 6.13**

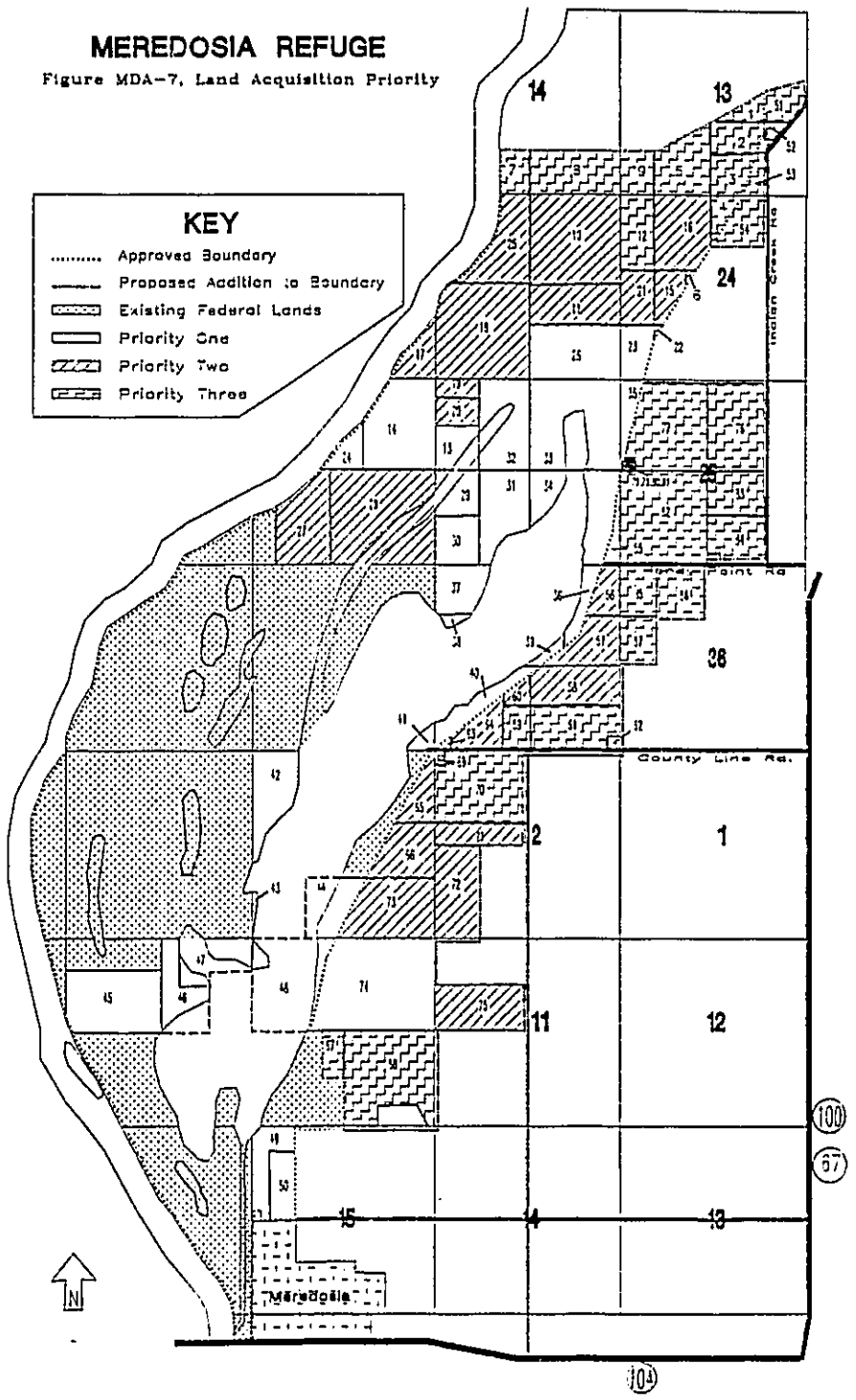
C. LAND ACQUISITION

1. Fee Title

The Fish and Wildlife Service presently owns and manages 2,216.04 acres (48.0%) of the 4,639 acres that are identified for land acquisition as a part of the Meredosia Refuge. The Service proposes to eventually acquire the remaining 2,422.96 acres using Land and Water Conservation Funds and inholding funds.

Land acquisition up until 1992 had been merely opportunistic (donations). Through 1991, the Service acquired only two ownerships (2,141.5 acres) for $11.00. Both ownerships were passed through The Nature Conservancy. An ownership of 1,849.8 acres cost $1.00 and a 291.7 acre ownership cost $10.00.

Figure MDA-2, Land Acquisition Priority Plan.



This year was an extremely busy year for land acquisition. A letter and response form were sent in January 1992 to each of the landowners (41) within the Meredosia approved acquisition project to identify potential willing sellers. A total of 24 landowners responded, of which 16 expressed an interest.

During the period of March 16-20, Steve Paulson (Division of Realty) gathered general real estate information and recent comparable sales in the vicinity of the Meredosia Refuge to analyze the local real estate market and prepare appraisals.

Betty Persson (Division of Realty) was on site May 18-21 to make offers on properties within the Meredosia Refuge acquisition boundary. Seven options were signed and two ownerships were purchased involving 74.6 acres at a cost of $22,430. The remaining five signed options will cost $796,000 to acquire 671.38 acres (Figure MDA-1).

The 47-acre Skinner property (MDA Tract # 86) was acquired in April 1992 for $8,400 from The Nature Conservancy using Land and Water Conservation Funds. This acquisition was below the market value of $21,400. This land area stretches for 3/4 mile along the eastern shoreline of Meredosia Lake. It supports the Federally threatened plant, decurrent false aster (*Boltonia decurrens*).

The 27.55 acre Evans Property (MDA Tract # 49) was acquired in September 1992 for $14,000 using Emergency and Hardship Funds. This is another key parcel. The Refuge visitor contact point, headquarters, and maintenance area will eventually be located on this parcel. The new equipment building will be constructed on this parcel in April 1993.

3. Other

The tax records, soil, and land use information was assembled for each parcel in the Meredosia Refuge acquisition boundary and entered into a computer program which will facilitate the entire land acquisition effort.

The Land Acquisition Priority System (LAPS) was amended in February. Meredosia Refuge was moved from the Migratory Bird Target to the Nationally Significant Wetlands Target. Meredosia Refuge was never funded under the Migratory Bird Target and eventually was deleted from the system.

In June, Congressman Robert Michel, House Minority Leader (18th District), sent letters to ranking members of the Interior Appropriations Committee requesting $500,000 for land acquisition at Meredosia Refuge during Fiscal Year 1993. The $500,000 appropriation initially passed the House but was defeated in the Senate. However, Senator Paul Simon reintroduced the request and it was passed in September.

In September, a Preliminary Project Proposal (PPP) was submitted to the Director to add 1,816.48 acres to the land acquisition boundary. The additional acres are needed to ensure that there is adequate land in public ownership to engineer and construct an Environmental Management Program (EMP) project on Meredosia Refuge. The PPP was approved by the Director on December 28, 1992.

A Decision Document (DD) will be prepared during 1993. As additional information is assembled to complete a DD for the addition, the actual acres identified for land acquisition may be less than the amount approved by the Director.

D. PLANNING

2. Management Plan

Writing continued in 1992 on the Refuge Management Plan for Meredosia Refuge which guides the land acquisition, facility development, and the restoration of all levees, water control structures, moist soil impoundments, bottomland hardwood, and old field habitat. The plan also recommends that the State of Illinois transfer jurisdiction over Meredosia Lake (Lake) to the Service. Presently, the Illinois Department of Transportation has jurisdiction over the Lake and it is managed by the Illinois Department of Conservation.

The management plan includes a new Refuge objective to provide environmental education and other compatible public use programs. Approximately 250,000 people live within a one-hour drive of Meredosia. Meredosia Refuge could provide excellent opportunities for people to experience and appreciate a bottomland forest and backwater lake ecosystem.

3. Public Participation

A public meeting was held at the Sand Bar Restaurant in Meredosia, Illinois, on April 16. The meeting was the first of what is to be an annual event to inform the public of Refuge management accomplishments, objectives, planned initiatives, and to solicit public input concerning existing and proposed Refuge programs. News releases, radio interviews, and letters sent to landowners within the acquisition boundary generated a lot of interest, as 85 people attended the meeting.

There was a spirited exchange of information and commentary between the Service and residents which provided Refuge staff with the impetus and challenge to improve our image. It also provided Refuge personnel the forum to state our intentions and to commit to improve the Refuge resources with their support.

Meredosia Refuge has been closed to public access since its establishment in 1973 due to a "very restrictive" interpretation of some deed restrictions. There were some individuals in the meeting that had deep resentment toward the Service. In addition, the lack of attention that has been given to Refuge management programs had many members of the community upset. By the end of the meeting, it was felt that the community support would be metered commensurate with our success.

4. Compliance with Environmental and Cultural Resource Mandates

A U.S. Army Corps of Engineers 404 permit application was approved in April to rehabilitate the levees and water control structures at Meredosia Refuge.

5. Research and Investigations

The Illinois State Museum Research and Collection Center was awarded a contract ($3,924) for inventory of archeological collections from Meredosia Refuge and Chautauqua Refuge.

The Illinois State Museum Research and Collection Center was awarded another contract ($1,177.40) to complete an archeological survey of the Evans Tract (1992 acquisition) and Dawson Tract (under option). The Refuge visitor contact point, headquarters, and maintenance area will eventually be

located on these two parcels. The new Meredosia equipment building will be constructed on the Evans Tract in April 1993.

The infamous "Conrad Report", titled "Preliminary Cultural Resources Identification and Predictive Modeling for the Chautauqua, Cameron, and Meredosia National Wildlife Refuge" was finally received on December 30. The Service first contracted ($10,000) with Western Illinois University during FY 1988 to perform a detailed field inventory of Meredosia, Cameron, and Chautauqua Refuge archeological resources. Six months in the making and four years fermenting, the vintage report was submitted to the Service as a "draft" final.

D. Other

Vision:
The Illinois River Refuges Management Team developed habitat, facility, and administrative **Goals** for Meredosia Refuge.

Goal:
Protect and manage the historic Meredosia Island and Meredosia Lake wetland complex to restore or simulate the natural hydrological process to create high quality seasonal, semi-permanent, and permanent wetland habitat. Cultivate and perpetuate the presence of natural and productive upland, floodplain wetland, and aquatic plant communities in support of fish and wildlife, particularly migratory birds.

The goal is structured to contribute to the **General Vision** and the **Elements of the General Vision** for the Illinois River Refuges Complex. The goal is best presented graphically (Figures MDA-3, MDA-4, and MDA-5).

E. ADMINISTRATION

1. Personnel

There are no personnel specifically assigned to Meredosia Refuge. All administrative and field operations are accomplished by Illinois River Refuges personnel. Two full time equivalents were proposed in 1991 and entered into the Refuge Operating Needs System for Meredosia Refuge.

Figure MDA-3, Meredosia National Wildlife Refuge - 1991.

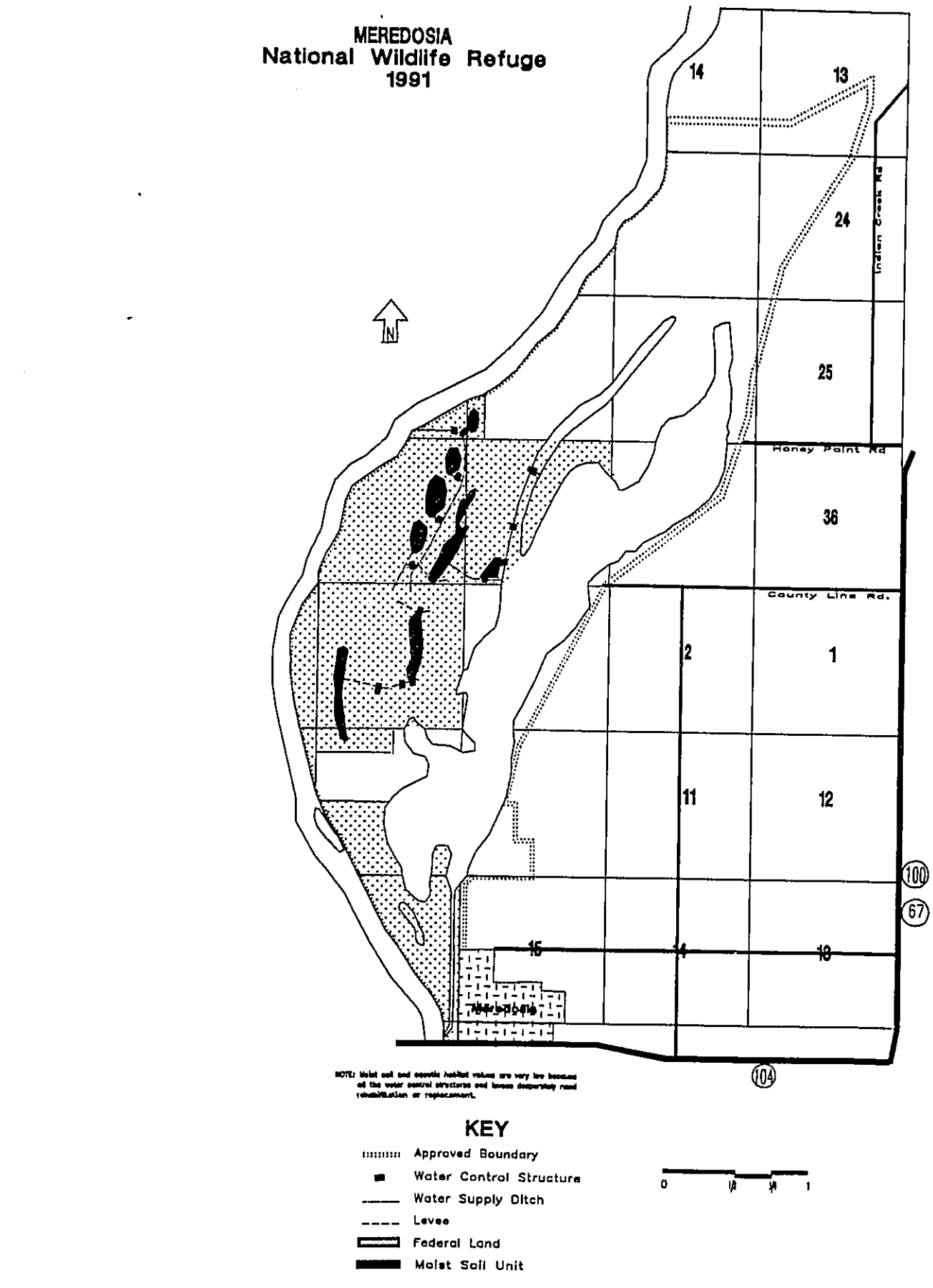
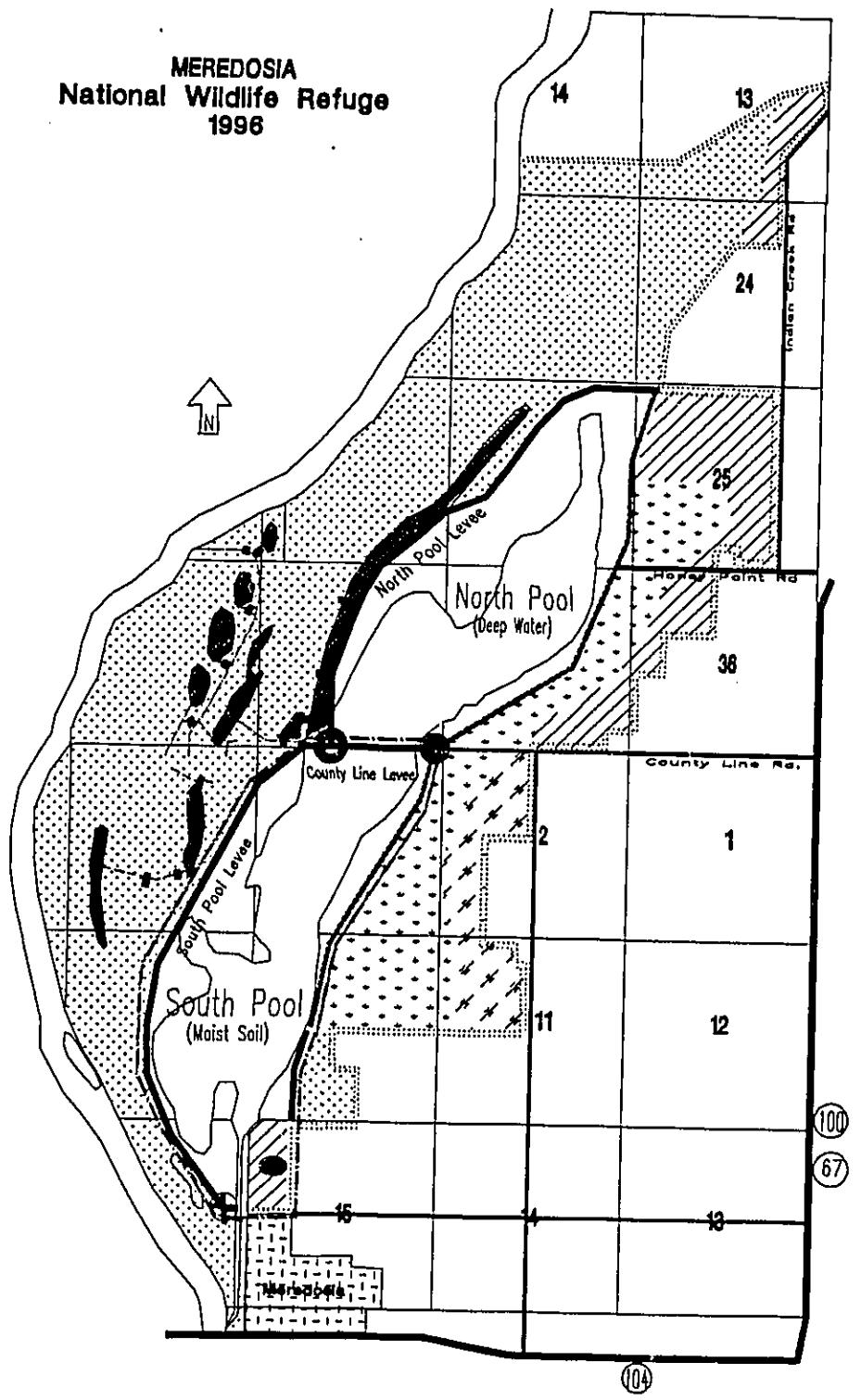


Figure MDA-4, Meredosia National Wildlife Refuge - 1996.



KEY

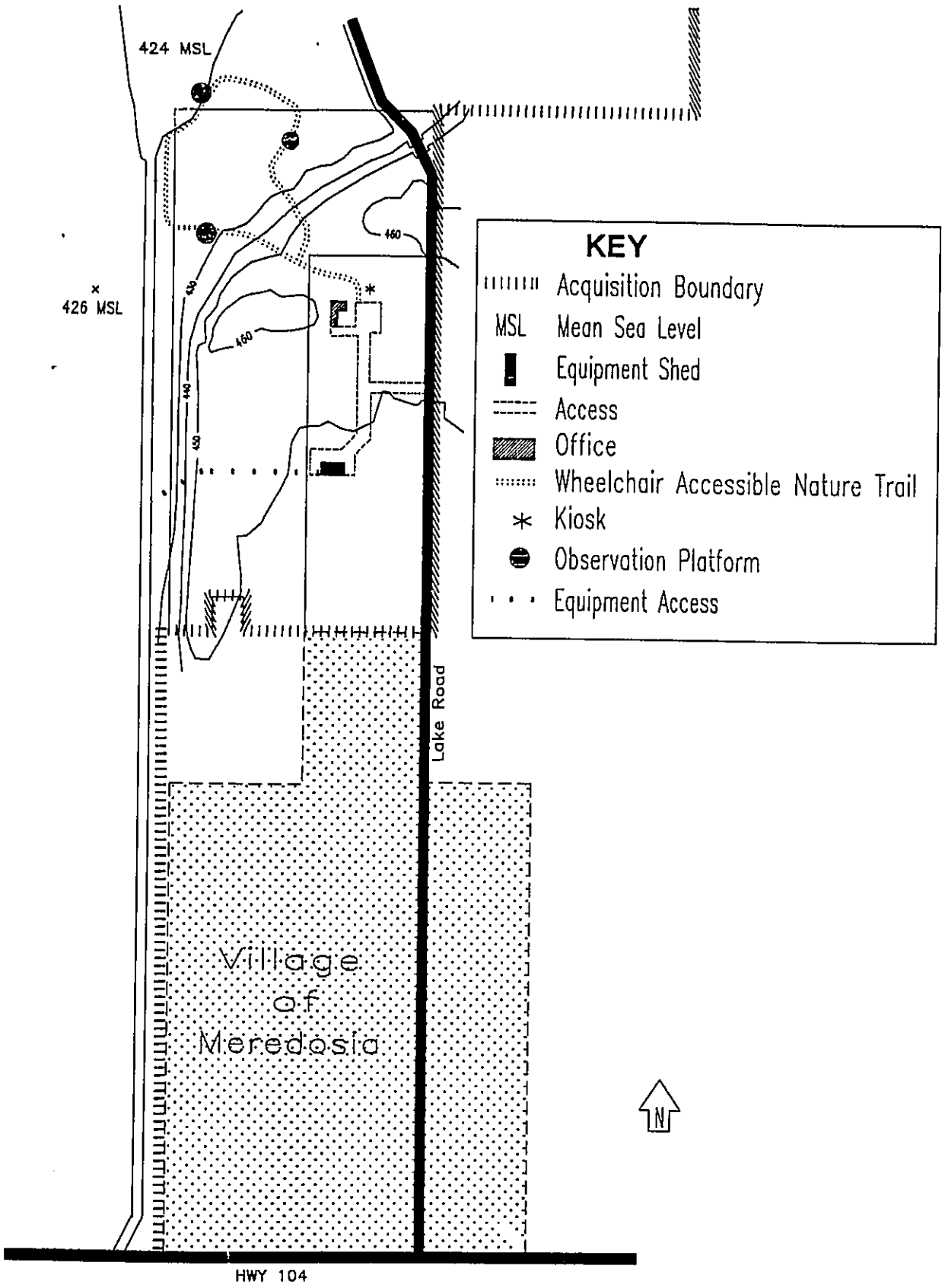
- Refuge Boundary
- Water Control Structure
- Water Supply Ditch
- Existing Levee
- Auto Tour Route (Seasonal/Limited Hours)
- Refuge Headquarters Area
- Bottomland Forest
- Upland Forest
- Prairie
- Open Marsh
- Moist Soil Unit

0 ¼ ½ 1

EMP Projects

- 4 Bay 20' Wide Structure
- 3 Way Gravity Structure
- 3 Way Pump Structure
- North Pool Levee (442 MSL)
- County Line Levee (442 MSL)
- South Pool Levee (436 MSL)

Figure MDA-5, Meredosia Refuge - Improvement.



2. Youth Programs

Funding was received in October (FY 1993) to initiate the first Youth Conservation Corps (YCC) program. The program will employ four YCC enrollees and one seasonal employee. These people will also make up the **first** people who were hired to specifically work at Meredosia Refuge.

4. Volunteers

On May 16, Refuge staff and volunteers cleaned up the recently acquired 47-acre Skinner tract. Six volunteers put in a total of 12 hours to remove trash and other debris. These hours represent the first documented volunteer hours donated to the Service at this Refuge.

Numerous contacts were made during the fall to significantly expand the volunteer program during 1993. The Meredosia School system and the Meredosia Lake Committee are expected to help with a variety of projects. The program will be initiated as an Earth Day event.

5. Funding

Meredosia Refuge has an organization code. It was not an Annual Work Planning office and was therefore never directly funded. Funds had to be "siphoned" from Chautauqua Refuge. The condition of Refuge facilities, structures, and habitat demonstrated that this fiscal relationship was detrimental to Refuge programs.

During 1992, the Chautauqua Refuge program was restructured and became the Illinois River National Wildlife and Fish Refuges Complex. Under this administrative relationship, Chautauqua Refuge, Meredosia Refuge, and the proposed Emiquon Refuge will all compete for Regional funds on an equal basis with other refuges in the Region. In October 1992, the Meredosia Refuge organizational code was changed to an Annual Work Planning office and was fund targeted $80,000. This was 18.6 percent of the entire amount that is managed by the Complex.

8. Other

Special Use Permits

Two special use permits are issued to the Lanesville-Chicago Hunt Club and Trusler Howe annually for access to their property.

Presently, the Refuge is not open to the public. There is no existing public right-of-way (ROW), nor has any ROW been acquired or granted for any land administered as a part of Meredosia Refuge.

Refuge Revenue Sharing Payments

In June, revenue sharing checks for Calendar Year 1991 were presented to the treasurers of Morgan County and Cass County, Illinois, for the amounts of $ 1,048 and $ 957, respectively. The 1991 payment was 89.5 percent of full entitlement (Table MDA-2).

Table MDA-2, Revenue Sharing Payments - Meredosia Refuge.

Year	Morgan	Cass	%	Year	Morgan	Cass	%
1991	$1048.00	$957.00	89.5	1986	$500.00	$999.00	60
1990*	1095.00	999.00	94	1985	536.00	1071.00	64
1989	648.00	1296.00	78	1984	689.00	1316.00	74
1988	591.00	1183.00	71	1983	716.00	1415.00	77
1987	491.00	981.00	59	1982	579.00	1311.00	91

* Cass County lands were reappraised in 1989. Based on the appraisal, the project value decreased from $221,000 to $142,000. Morgan County lands were also reappraised in 1989 and had appreciated in value from $110,900 to $156,000 due to an additional 291.7 acres that were acquired in 1990. The per acre market value within Cass and Morgan counties actually depreciated.

F. HABITAT MANAGEMENT

1. General

The Refuge is protected at its lowest elevation by a low levee that lies between the Illinois River and Meredosia Lake. This levee is at 429.0 mean sea level (MSL) and is subject to annual flooding. Meredosia Refuge totals 2,216.04 acres of bottomland habitat and is composed of about 110 acres of bottomland hardwoods, 116 acres of open water, 150 acres of moist soil impoundments, 72 acres of cropland, 211 acres of former cropland in various stages of succession, 28 acres of upland grasslands, and 1,529 bottomland forest habitat.

2. Wetlands

Meredosia Refuge is located in the upper end of Alton Pool, with the La Grange Dam located four miles to the north. The primary impacts of the navigation dam are the erratic water levels that are attributable to maintenance of the minimum pool level. A rapid rise in water level results when the dam is opened, and a rapid fall in water level occurs when the dam is closed. A four to six foot rise in water level within two days is common (Table MDA-3). The greatest differences in water level occurred during November (12.5 foot difference) and in August (10.1 foot difference).

There are eight impoundments with associated levees, ditches, and water control structures on the Refuge. The impoundments range in size from 4.0 to 20.6 acres and are managed for moist soil plants. Flooding of the impoundments has been accomplished by pumping from the Illinois River or from Meredosia Lake. Pumping has not been conducted since 1989 due to several factors: the river pump site was destroyed by U. S. Army Corps of Engineers dredging activities; personnel and financial constraints; ongoing levee and water control structure rehabilitation.

Natural flooding occurred several times from January through April. Impoundment water levels were nearing a low point by May 15 so that rehabilitation work could begin on the levees. However, the rains began the following week which caused backwater flooding of the lower impoundments. Due to high water, habitat rehabilitation was conducted on the upper portion of Alice's Pond (6.3 acres) in April and May.

Several days were spent mowing maple and willow saplings that had invaded the impoundment.

The D-4 bulldozer was transported to the Refuge to clear the trees too large for the mower. Approximately three acres of silver maple and willows were cleared. The D-4 was also used to remove mud and debris from in front of the water control structures which were clogged by beaver activity.

Levee rehabilitation began on July 8. The new John Deere (JD) 750-B was used to finish the top grade of Moss and Van's levees (these two levees were rebuilt in winter 1991 under contract). In addition, the water control structures on both levees were replaced with 24-inch corrugated metal pipes with stoplog structures. The JD 750-B was also used to improve the steep slope on these levees. The dozer had to be hauled back to Chautauqua Refuge on August 6 to repair flood damage to the Lake Chautauqua west levee.

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7/92 EB

Marsh smartweed was mowed on July 13 and 14 within Buckbrush Swale impoundment. Marsh smartweed has become a monoculture in this impoundment. Mowing was conducted on the west side of the impoundment. Follow-up analysis of the mowing will be documented to identify any benefits that mowing has in the control of this plant. Chemical control was to be conducted, but the lush growth (5 feet high) throughout the entire impoundment was too far along.

Illinois River spring water levels peaked at Meredosia on April 24 at 428.6 MSL. The South levee rehab work conducted during the winter of 1991 was put to a test during this flood, as water came within inches of the top of the levee. The spillway functioned properly and no levee damage occurred. Beaver were a continuing problem in the water control structures and presented a challenge to water management.

River flooding occurred again during the last week in July and first week of August when the water level reached 430.3 MSL, which is 1.3 feet over the top of the South levee. Backwater flooding started again during mid-November and lasted through the end of December.

Table MDA-3, 1992 Illinois River Elevations - Meredosia Refuge.*

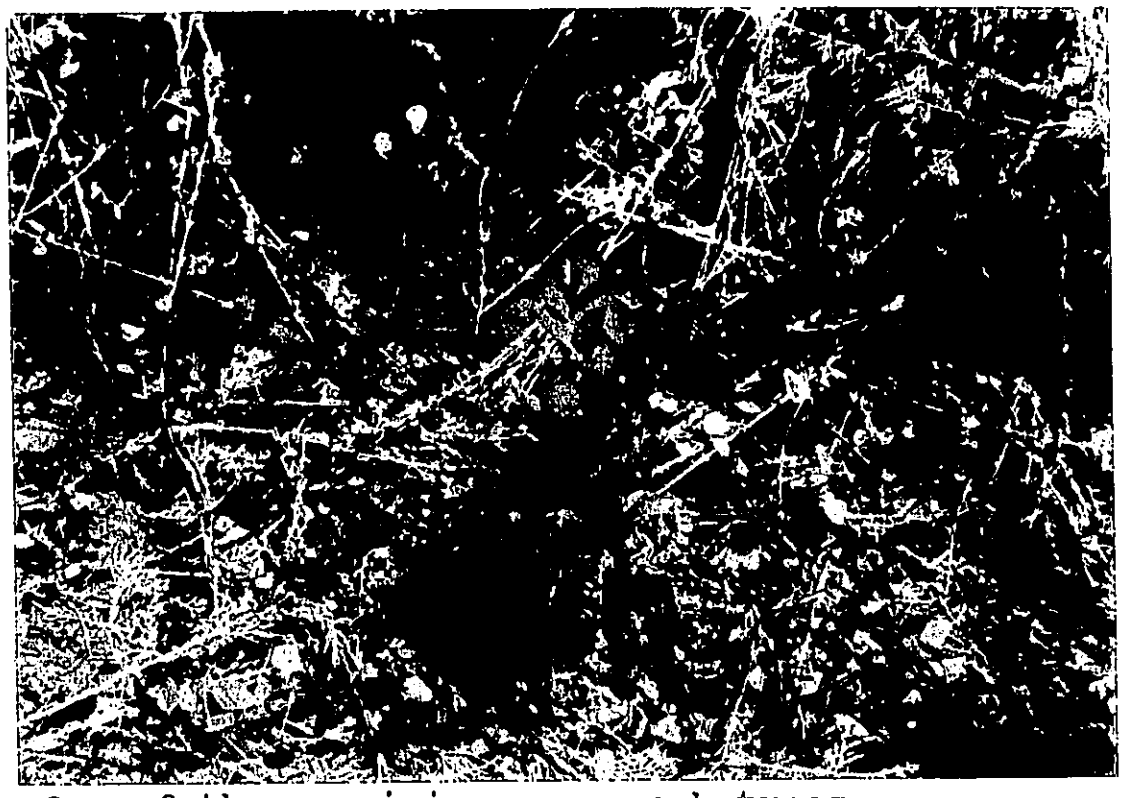
Month	Maximum	(Date)	Minimum	(Date)	Differential	Average
January	426.8	(01)	422.6	(22)	4.2	424.2
February	427.6	(27)	423.3	(12)	4.3	425.5
March	427.5	(01)	424.9	(10)	2.6	426.6
April	428.6	(24)	424.4	(05)	4.2	426.3
May	428.1	(01)	421.2	(31)	6.9	424.4
June	422.2	(22)	420.2	(30)	2.2	421.2
July	429.0	(29)	420.6	(02)	8.4	424.8
August	430.3	(04)	420.6	(25)	10.1	424.8
September	425.6	(13)	420.2	(04)	5.4	423.4
October	423.6	(01)	420.6	(22)	3.0	421.5
November	433.5	(25)	421.0	(01)	12.5	428.0
December	433.6	(22)	430.4	(31)	3.2	431.8

*Based on elevations obtained from Meredosia gauge (river mile 70.75).

3. Forests

A bottomland hardwood restoration plan was completed in 1988 and prescribed the planting of hardwoods throughout most of the croplands acreage. During 1989-1991, 10.5 acres of cropland were planted in pin oak, green ash, and sycamore. Approximately 95 percent have been destroyed by deer. Those trees that survived were nearly all green ash. A previous pin oak planting on the Refuge in the mid-1980's met with a similar fate. Hardwood planting was not conducted in 1992 because of the loss of previous plantings.

Meredosia Refuge contains about 1,529 acres of bottomland forest. There are still a few spectacular stands of pin oak and pecan.



One of the surviving green ash trees.
6/92 EB

4. Croplands

A Cooperative Farming Program was conducted on 68 acres of Meredosia Refuge. Corn was planted and averaged 15 bushels/acre. The Refuge receives a 25 percent share of the crop which is left in the field for wildlife use. The poor corn yield was a result of early March planting, followed by drought. Corn was planted a second time in April, only to be followed by a late April frost.

10. Pest Control

Basagran was the only agricultural herbicide used this year in conjunction with the Cooperative Farming Program. A total of 68 acres of corn were field treated.

12. Wilderness and Special Areas

A 275-acre area of bottomland forest was submitted as a proposal in 1979 for designation as a Research Natural Area. The area under consideration is a silver maple forest on a natural levee of the Illinois River with associated meander scars and backwater sloughs. The State of Illinois has also

expressed some interest in the same area as a candidate for the State Natural Area List. There has been no State or Federal decision pertaining to the status of either proposal.

G. WILDLIFE

1. Wildlife Diversity

Meredosia Refuge is a vital link in the chain of resting, feeding, and wintering areas for migratory birds along the Mississippi Flyway. Waterfowl are most visible with 18 species commonly occurring. More than 250 other species of birds use the Refuge. Other marsh, water, and shorebirds commonly are found during the spring and fall months. Bald eagles are common winter inhabitants.

Forty-five species of mammals, 48 reptile, 19 amphibian, 102 fish, 10 crustacean, and 37 mollusk species have been identified within the local area.

2. Endangered and/or Threatened Species

The northern bald eagle is the only Federally endangered animal species to use Meredosia Refuge. Use days for the northern bald eagle totaled 165 during 1992. Bald eagle numbers peaked at ten on January 17.

Of the 37 bird species listed as endangered by the Illinois Endangered Species Board, 14 have been known to occur on the Refuge. Great egrets are the most abundant, with peak populations reaching up to 75. Double-crested cormorants and black-crowned night herons are the next two most prevalent species, with peaks of up to 100 and 30, respectively. One osprey, an Illinois endangered species, was observed on May 4.

The 47-acre Skinner tract, supporting the Federally threatened plant, decurrent false aster (*Boltonia decurrens*), was purchased from The Nature Conservancy during 1992. Surveys will be conducted in 1993 to delineate and protect areas supporting the threatened plant.

3. Waterfowl

Twenty-two species of waterfowl have been observed using Meredosia Refuge. Primary species are the mallard, black duck, northern pintail, American green-winged teal, blue-winged teal, American wigeon, wood duck, northern shoveler, redhead, ring-necked duck, canvasback, lesser scaup, bufflehead, ruddy duck, common merganser, hooded merganser, common goldeneye, and Canada goose.

Waterfowl use days (Table MDA-4) are calculated from data obtained from weekly aerial surveys conducted in the spring (Table MDA-5) and fall (Table MDA-6) by the Illinois Natural History Survey. Since surveys are not always funded throughout the entire waterfowl migration period, these data represent only the available data, and are considered minimum use days. The survey data include Meredosia Lake.

Duck use days in 1992 totaled 669,645, which is 25 percent below the 10-year (1982-1993) average of 883,804 use days. January to June duck use was very low at Meredosia and throughout the Lower Illinois River Valley. All Refuge impoundments were drained beginning in March to allow for rehabilitation of the levee system. The November-December period was characterized by high river water levels that flooded most of the Refuge. This was the only use period that duck use days (597,675) exceeded the 10-year average (487,675). Except for 1990, which showed a 49 percent increase from the 1982-93 average, duck use days at Meredosia continued a steady decline that began in 1986.

Goose use days in 1992 total 4,470, which is 91 percent below the 10-year (1983-1992) average of 47,314 use days. Goose use in 1992 was the lowest of the 10 years, and probably at an all-time low. Probable cause of the goose decline is the poor farming conditions that have resulted during these periods. Spring floods have resulted in late planting of soybeans instead of corn. In 1992, there was no spring flood, and corn was planted early in spring. However, dry conditions and a late April frost killed a lot of the corn.

Historical waterfowl population data shows the potential of the Refuge and Meredosia Lake. Waterfowl peaks from 1962-1972 were: 86,000 puddle ducks; 17,000 diving ducks; 2,200 Canada geese; and 3,500 snow geese. In fall 1971, mallard numbers were consistently near 10,000, once exceeding 20,000 birds.

During the 1970-79 period, average total duck use days were approximately 2 million, and average total goose use days were 130,000.

The decline in waterfowl numbers using the Refuge and Meredosia Lake has been attributed to several factors: overall decline in duck and goose populations and loss of habitat management capabilities, loss of quality habitat conditions, and the loss of aquatic vegetation and sanctuary areas on Meredosia Lake. Meredosia Lake habitat suffered from the same chronic conditions that other backwater lakes within the Illinois River system have experienced. Heavy sediment loads reduced poor water quality and destroyed much of the aquatic vegetation.

Table MDA-4, Waterfowl Use Days - Meredosia Refuge, 1983-1992.

Year	January-March	April-June	July-September	October-December	Total	% Variance from 10-year average
			Ducks			
1983	430,490	235,050	69,690	369,005	1,104,235	+ 20
1984	476,650	138,040	75,625	214,155	904,470	+ 3
1985	197,900	57,110	73,490	1,153,800	1,482,300	+ 40
1986	92,142	23,297	60,675	610,235	786,349	- 12
1987	91,663	26,692	41,800	377,165	538,320	- 40
1988	105,870	19,640	64,955	198,940	389,405	- 56
1989	46,315	95,002	44,510	418,855	604,682	- 32
1990	673,555	382,740	1,050	660,070	1,717,415	+ 49
1991	186,659	177,000	0	277,555	641,214	- 28
1992	59,910	1,760	10,300	597,675	669,645	- 25
10 year average	236,115	115,633	44,210	487,745	883,804	
			Geese			
1983	30,745	600	600	6,115	38,060	- 20
1984	8,920	1,200	150	5,170	15,440	- 68
1985	22,030	750	0	137,740	160,520	+ 71
1986	2,950	150	0	29,987	33,087	- 31
1987	2,852	270	2,250	29,390	34,762	- 27
1988	7,215	300	1,055	20,605	29,175	- 39
1989	7,380	600	900	35,875	44,755	- 6
1990	79,890	5,940	0	20,028	105,858	+ 56
1991	2,475	1,875	1,500	1,163	7,013	- 85
1992	310	0	0	4,160	4,470	- 91
10 year average	16,486	1,169	646	29,023	47,314	

Table MDA-5, Peak Spring Waterfowl Species Data - Meredosia Refuge, 1983-1992.

SPECIES	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Aver. 83-92
MALLARD	3200	8025	3600	3625	1300	2000	4000	10500	5500	1850	4360
BLACK DUCK	75	165	50	75	30	100	200	250	25	0	100
GADWALL	700	390	200	0	75	75	300	900	500	0	364
PINTAIL	550	600	375	120	600	200	75	1700	1000	200	542
G-W TEAL	800	100	80	10	80	150	300	800	300	50	267
B-W TEAL	850	650	175	150	400	200	200	1900	700	0	593
A. WIGEON	1400	1600	650	45	250	500	50	1300	1900	0	960
N. SHOVELER	900	800	250	55	400	140	100	1800	0	10	446
REDHEAD	275	215	75	0	50	80	40	175	0	0	91
RINGNECK	600	575	500	75	250	400	200	1900	900	500	590
CANVASBACK	750	1100	500	460	150	450	250	1300	1250	300	651
LESSER SCAUP	1500	4000	2300	320	500	800	350	2800	4125	200	1690
BUFFLEHEAD	150	150	50	35	50	20	30	175	0	0	66
RUDDY DUCK	250	400	60	220	30	50	40	150	200	0	140
C. MERGANSER	80	325	125	125	200	130	170	450	570	0	218
H. MERGANSER	40	75	50	40	50	40	30	60	0	0	39
C. GOLDENEYE	350	1000	700	500	800	300	150	1900	1150	0	685
SNOW GOOSE	150	40	250	0	25	0	0	375	0	0	84
CANADA GOOSE	450	500	1200	125	1400	600	300	1825	300	10	671

Table MDA-6, Peak Fall Waterfowl Species Data - Meredosia Refuge, 1983-1992.

SPECIES	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Aver. 83-92
MALLARD	6700	2700	1700	35000	6500	2800	6800	25000	10000	27500	12475
BLACK DUCK	75	30	300	250	80	70	475	70	50	400	180
GADWALL	80	150	650	350	175	75	450	350	500	450	323
PINTAIL	400	450	1700	3300	325	250	500	900	150	1100	908
G-W TEAL	300	1000	1600	450	600	400	600	400	100	800	625
B-W TEAL	700	750	900	700	1000	1000	500	100	0	300	595
A. WIGEON	650	650	2400	5500	500	150	700	700	900	800	1295
N. SHOVELER	80	30	500	100	450	100	500	0	0	0	176
REDHEAD	60	50	125	75	175	50	80	0	0	0	62
RINGNECK	175	125	650	400	400	150	450	0	100	450	290
CANVASBACK	40	150	650	400	450	225	400	625	50	0	299
LESSER SCAUP	375	350	1900	2500	750	450	750	2500	925	100	1060
BUFFLEHEAD	30	40	150	200	175	75	150	300	0	0	112
RUDDY DUCK	80	100	300	300	500	175	200	0	0	0	166
C. MERGANSER	25	35	375	250	150	100	115	0	5	100	116
H. MERGANSER	20	50	50	100	30	20	40	0	0	0	31
RB MERGANSER	0	20	60	20	0	0	0	0	0	100	20
C. GOLDENEYE	60	75	1500	800	425	275	615	30	100	600	448
SNOW GOOSE	30	75	750	200	450	125	225	0	0	0	186
CANADA GOOSE	100	225	3950	1000	700	575	975	700	100	800	913

Wood Duck Nest Box Data

There are 19 wood duck nest boxes available on Meredosia Refuge; however, only 11 boxes were checked in 1992. Production data (Table MDA-7) reflect calculations based on the 11 boxes inspected, which was considered the number of boxes available.

The percentage of boxes used (64%) was moderately high. Seven of the 11 boxes were used by wood ducks. There was a 71% success rate with 5 of the 7 boxes producing young. One of the 7 boxes appeared to be a dump or abandoned nest, and the other unsuccessful nest was predated. Of the remaining 4 boxes, 3 had no use, and 1 contained a passerine nest.

Table MDA-7, Wood Duck (WD) Box Use 1983-1992 - Meredosia Refuge.

Year	# of Boxes	# Used by WD (%)	# Used - (%) Succ.	# Young Produced	Average Hatch Size	Starli
1983	23	8 (35%)	1 - 12%	9	9.0	5
1984	26	9 (35%)	7 - 77%	55	7.9	2
1985	26	9 (35%)	8 - 88%	70	8.8	0
1986	26	8 (31%)	7 - 86%	94	13.4	0
1987	26	12(46%)	10 - 83%	105	10.5	2
1988	24	14(58%)	13 - 93%	117	9.0	5
1989	25	11(44%)	9 - 82%	83	9.2	8
1990	26	22(85%)	8 - 36%	88	11.0	0
1991	-	-	-	-	-	-
1992	*11	7 (64%)	5 - 71%	25	5.0	1

- Boxes not checked in 1991
* Partial check of boxes, there are a total of 19 boxes at Meredosia

4. Marsh and Water Birds

American coot account for the majority of marsh and water bird use on Meredosia Refuge. Coots peaked at 400 in April during the spring migration, and peaked at 1,400 in November during the fall migration. Other marsh and water birds include the great blue heron, black-crowned night heron, great egret, double-crested cormorant, American bittern, pied-billed grebe, and the green heron.

Aerial surveys conducted by the Illinois Natural History Survey reported that the heron rookery located in the northernmost timber on Meredosia Island was active. In 1992 there were 150 great blue heron nests.

5. Shorebirds, Gulls, Terns and Allied Species

Thirty-two species of shorebirds, gulls, terns and allied species have been identified in the Meredosia area. The ring-billed gull and herring gull account for most of the use days in this category. Other species that are commonly seen on Meredosia Refuge in smaller numbers are yellowlegs, killdeer, sandpipers, and terns.

6. Raptors

The barred, eastern screech, and great horned owls are the primary species in this category. The turkey vulture, bald eagle, and rough-legged, sharp-shinned, and red-tailed hawks are also common.

Four species that typically use the Meredosia area and are listed as endangered by the State of Illinois are: northern harrier, Cooper's hawk, red-shouldered hawk, and the osprey.

7. Other Migratory Birds

On May 20, the Cass County mourning dove survey was completed. Fourteen doves were heard with another 15 observed.

8. Game Mammals

Game mammals on Meredosia include white-tailed deer, gray and fox squirrel, and eastern cottontail. Furbearers include mink, muskrat, raccoon, coyote, and red fox.

No hunting or trapping programs are presently allowed due to deed restrictions that prohibit recreational hunting and trapping. In the future, deer hunting may be conducted as a part of a wildlife or habitat management program.

10. Other Resident Wildlife

Beaver are common and are a continuing nuisance in water control structures.

Bobwhite quail are common in the area. Ring-necked pheasant are present as well but are less common. Considering the location of nearby fields, habitat on the Refuge should

provide good cover. Reptiles and amphibians are plentiful in the rich moist bottomlands.

On April 8, six turkeys (5 hens, 1 gobbler) were observed in the field north of the old equipment shed. Later in the summer a hen was observed with five young.

11. Fisheries Resources

Fish are not abundant on Meredosia Refuge as the impoundments are primarily managed for moist soil production. Backwater flooding from the Illinois River results in fish species being present, temporarily. These species usually include carp, buffalo, flathead catfish, and yellow bullhead.

H. PUBLIC USE

1. General

Public use is not permitted on Meredosia Refuge, as it is designated a wildlife sanctuary. In support of wildlife and habitat management programs, public use opportunities are expected to be initiated during 1993 on the southeastern end of the Refuge.

6. Interpretive Exhibits/Demonstrations

On May 30 and 31, Refuge staff set up a display and participated in the annual Meredosia Riverfest. The display contained literature about the Illinois River, the National Wildlife Refuge System, the Environmental Management Program, and Take Pride in America. Aerial photos of Meredosia Refuge were also displayed. A number of videos were shown, including one with an interview of Dorothy Van Deventer, a well known local historian and 30-year resident of Meredosia Island. Approximately 350 people visited the display during the two-day event. This is the only public event of this nature that occurs in Meredosia, Illinois. Since there is no Refuge staff at Meredosia, this event gives us an opportunity to meet and greet area residents, and answer questions about the Refuge.

7. Other Interpretive Programs

On May 5, Refuge staff enjoyed a tour of Meredosia Refuge with two distinguished guests - Mr. Frank Bellrose, internationally known waterfowl biologist, and Mr. James Anderson, Jr., son of the late James Anderson, who donated 1,780 acres to the Service through The Nature Conservancy in 1973 to establish Meredosia Refuge.

5/92 EB

Refuge staff led a tour to Meredosia Refuge on May 16. Dorothy Van Deventer, a resident of Meredosia Island before it became a Refuge, did most of the presentation for the 27 area residents who attended. Most of the residents had never been on the island before. They had often heard stories about it and seemed quite impressed with the magnificent stands of pin oak and pecan.

17. Law Enforcement

Meredosia Refuge has been managed as a wildlife sanctuary and is closed to all public use. Trespass on the Refuge is the primary law enforcement problem. In 1992 there were seven trespass cases, one boating violation, and one fishing violation made with a $50 fine for each violation.

All cases were made by Illinois Department of Conservation officers. Public use on the south end of the Refuge has been proposed in the Meredosia Refuge Management Plan.

Aerial flights were conducted on June 30 and July 23 in search of cultivated marijuana on Service lands. The survey was conducted in conjunction with the Air National Guard (Operation Cash Crop). No plants were observed.

I. EQUIPMENT AND FACILITIES

The only building on Meredosia Refuge is an open air wooden storage shed constructed in 1973. It is in a deteriorated condition. The only equipment includes a farm tractor and a 1971 dragline.

1. New Construction

On November 24, Regional Office civil engineer Erin McFadden made a site visit to the newly acquired Evans tract at Meredosia Refuge. This land tract is located east of Meredosia Lake and is the first land area above the 100 year floodplain purchased at Meredosia since its establishment. Mr. McFadden is project manager for construction of a new equipment shed on this tract. Forty thousand dollars has been obligated for this project during FY 1993.

2. Rehabilitation

Alice's Pond rehabilitation efforts included mowing three acres of maple and willow saplings during April and May that had invaded the area. Rehabilitation was conducted on Moss and Van's levees in July. Both levees received new corrugated metal pipes with stop-log water control structures, and levee tops. Muddy conditions, high water, and other priorities prevented any further levee rehabilitation.

8. Other

The pump site along the Illinois River which had been in place since establishment of the Refuge in 1973 was rehabilitated in 1989. In September 1990, six feet of dredge spoil was placed on the site by the U.S. Army Corps of Engineers (COE). The deposits of silt and sand were discovered in November 1990. The COE, St. Louis District, was notified of the incident on January 15, 1991. Initially, the COE appeared to be eager to correct the situation. Repeated contacts with COE produced no results. The COE then stated that they had not deposited the spoil, and we would have to prove it. A review of the dredge contractor's daily log in January 1992 showed that indeed the spoil was deposited on the Refuge by the COE.

1/92 EB

A February 1992 letter from the COE Regulatory Branch to the Refuge Manager threatened action against the Service because they could not find a permit that allowed reconstruction of the pump site. A permit had been issued for the work. The Refuge Manager told them that they should keep better records or conduct more thorough staff work and that we were extremely disenchanted with the service that had been provided by the District.

On April 28, Refuge staff met at Meredosia with the U.S. Army Corps of Engineers, St. Louis District personnel Ron Yarbrough, Planning Division, and Steve Dierker, Chief of Dredging Operations, to discuss the removal of dredge spoil from the pump site. Chief Dierker apologized several times for the February 1992 letter. The outcome of the meeting was that the COE would purchase 105 tons of two inch gravel to be placed on the river pump site. Refuge staff and equipment would be used to complete the site work. At year's end, the gravel had been delivered, but site work had not been completed due to high water covering the site.

J. OTHER ITEMS

4. Credits

Britton:	Wrote all sections
Hertlein:	Data input, editing
Clanin:	Pictures, editing
French:	Editing
Engelke:	Provided all figures, editing